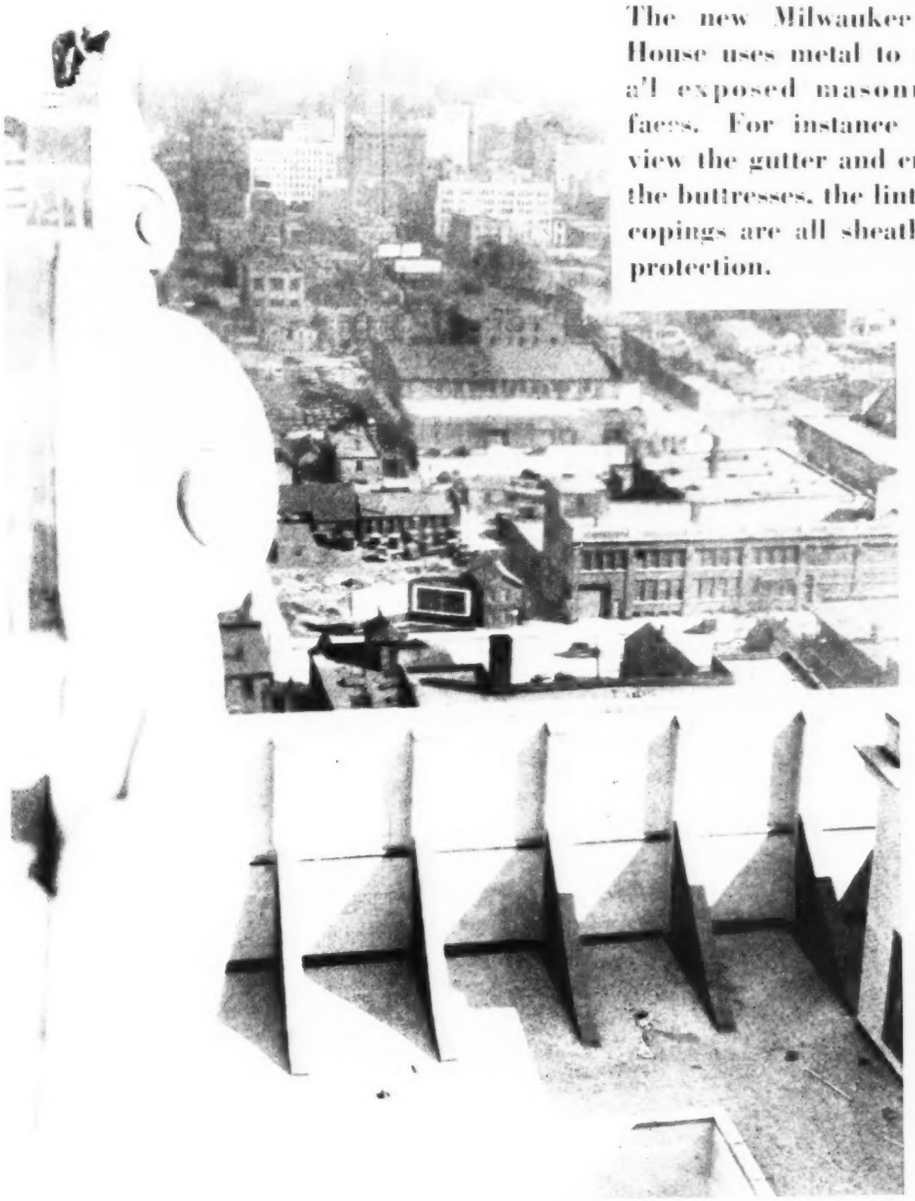
American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

FOUNDED 1880



Use of sheet metal for protection is on the increase. The new Milwaukee Court House uses metal to protect all exposed masonry surfaces. For instance in this view the gutter and cresting, the buttresses, the lintels and copings are all sheathed for protection.

SEPTEMBER 14, 1931

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THE price you pay for any merchandise includes both manufacturing cost and transportation cost. If, by carefully choosing your source of supply, you can save money on one or both of these factors, you are following the precedent of the most progressive business leaders of the day. This applies especially to stove and furnace repair parts—parts on which Northwestern can save you money.

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The largest stock of stove and furnace parts to be found anywhere in this country is carried for you by Northwestern.

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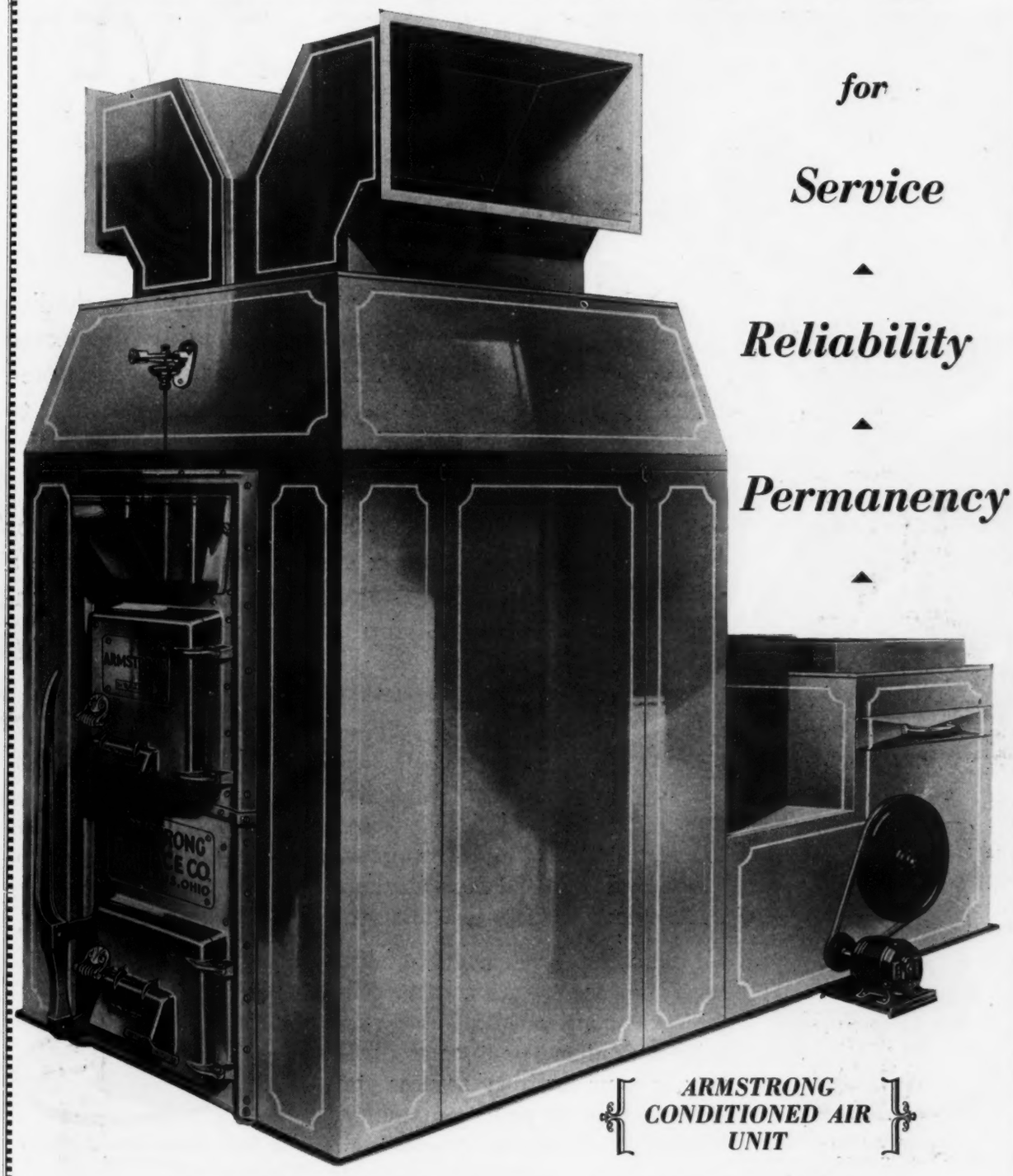

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EXCLUSIVE MANUFACTURERS OF STEEL FURNACES FOR WARM AIR HEATING

ARMSTRONG FURNACE CO.

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THE watchword of Midland is quality based on scientific, rigidly inspected construction. Each unit is so constructed as to give maximum satisfaction and to build a foundation upon which a dealer builds toward success and leadership.

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Through the merging of two great institutions Midland co-operations and services are now two-fold.

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MIDLAND FURNACE COMPANY

COLUMBUS, OHIO + + + DES MOINES, IOWA

Published Every Other Week by Porter-Spofford-Langtry Corp., 139 North Clark Street, Chicago, Illinois. Entered as second-class matter, January 29, 1930, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record. Yearly subscription, $2.00

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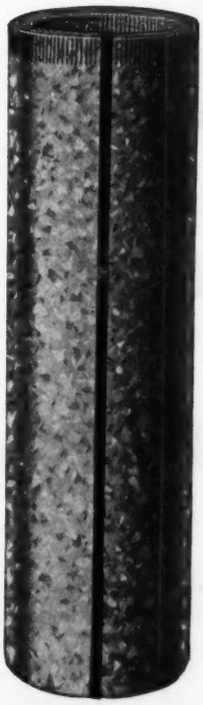

These prices are good only on nests of 50 feet in the sizes ordered. Order as many "nests" as you want, but each nest must be of only one size.

	No. 24	No. 26
50-ft. nests of 7-in.	$ 7.20	$5.85
50-ft. nests of 8-in.	7.80	6.45
50-ft. nests of 9-in.	8.85	7.05
50-ft. nests of 10-in.	9.60	7.80
50-ft. nests of 12-in.	12.00	9.30

The prices apply only on nests of a dozen in one size as shown in the picture. Order as many dozen as you wish, but each dozen must be of one size.

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1 doz. of 7-in.	$3.60	$2.95
1 doz. of 8-in.	3.96	3.38
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IT IS significant that many of the finest homes in which Silent Automatic is delivering uniform, dependable heating service year after year, are equipped with warm air systems—homes like that of H. J. Horrocks, Utica, N. Y., pictured below.

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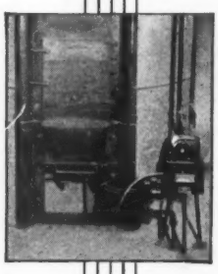

Scores of heating engineers are increasing their volume and profit because of this fact. Halverson Bros., Portland, Me., write: "Our demonstrator is installed in a forced air heating plant with which we heat our 3-story building. From this demonstrator we have sold quite a few conditioned air plants, one of the late ones being for a $2200 job, including Silent Automatic."

Why not sell *complete* installations—Silent Automatic and warm air systems—making two profits on a single sale, and at the same time insuring satisfaction to the buyer? The coupon will bring you details of this opportunity in your territory.

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12001 E. Jefferson Avenue Detroit, Michigan

All Silent Automatic models listed as standard by Underwriters' Laboratories

MEMBER OIL HEATING INSTITUTE OIL HEAT

C O U P O N

Silent Automatic Corporation, Detroit, Michigan

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For Warm Air, Steam and Hot Water Heating Systems—Old or New Homes

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Made by the World's Largest Producer of Domestic Oil Burners

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"FLUX, flux, who's got the flux? Say . . . I'm supposed to be a metal worker, not a detective!"

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Get next to Kester! This is the solder that carries its flux inside itself. All you have to do is apply heat, and the correct amount of the scientifically designed flux flows right to the job. It's more convenient for you and your men . . . absolutely certain to give perfect results and help you build a valuable reputation for high-class work! And last but not least, it is so economical that you can get the bids on more, bigger, and better jobs . . . thus helping to assure year-round employment for your men, and bigger net profit for yourself! There's a specific Kester Solder for every purpose . . . Acid-Core, Rosin-Core, Paste-Core. Packed on 1, 5 or 20 pound spools, and available from your jobber. Kester Solder Company, 4241 Wrightwood Ave., Chicago, Illinois. Incorporated 1899.

All Kester Solder Exceeds Class A Purity Specifications of the A. S. T. M.

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MINNEAPOLIS-HONEYWELL

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Plus Installation

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The Electric Janitor

PRODUCT OF
TIME-O-STAT CONTROLS
Division of MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
MINNEAPOLIS MINNESOTA AND ELKHART, INDIANA

Say you saw it in AMERICAN ARTISAN—Thank you!

Revere Sheet Copper

Helps the sheet metal worker secure more business

The Arizona Biltmore at Phoenix is one of the West's newest, most noted hotels.

It is also a fine example of the growing importance of the Sheet Metal Contractor in big building projects.

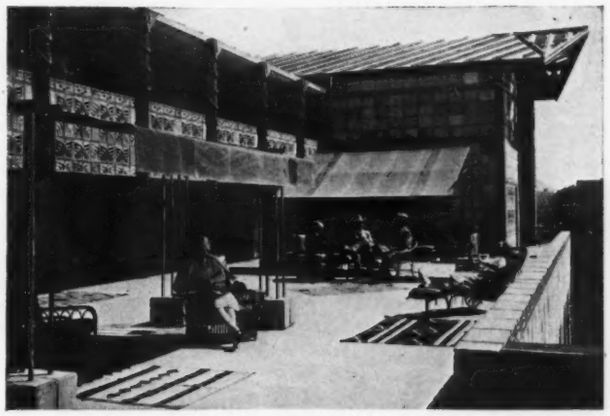
Inside and out . . . a great deal of the decoration was carried out in sheet metal work. The ballroom is decorated in copper. Copper frames the indirect lighting. It ornaments the balcony pillars. Roof projections over the gables are covered with copper. The various roofs are copper.

And it is all Revere Sheet Copper . . . installed by the Southwest Manufacturing and Supply Company.

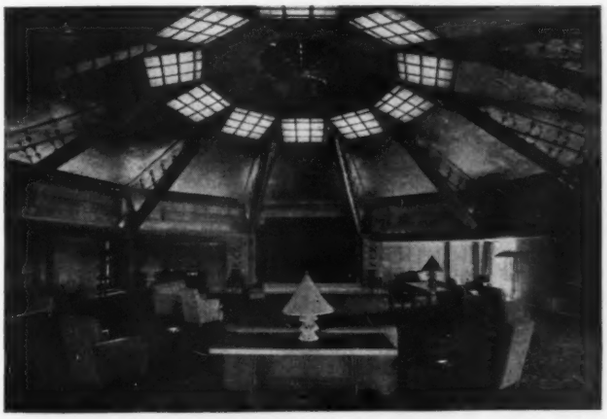
The prestige of the Revere name . . . America's oldest name in copper, brass, and bronze . . . extends to all Revere products. It gains for these products an important preference, in which sheet metal contractors share.

Revere prestige is an aid in securing business . . . and the uniformly high quality of Revere products is assurance that all installations will be permanent and satisfactory to customers . . . profitable to contractors.

For further information, address nearest office.



Note the decorated balcony pillars . . . the lattice-like overhang of the roof at the gables. Revere Sheet Copper was used throughout at the Arizona Biltmore.



Ballroom of the Arizona Biltmore decorated with Revere Sheet Copper. Cornices, struts supported by cone ornaments, framed lighting, ventilator in center of ceiling, cone lamp pedestals . . . are all Revere Copper. Fireplaces lined with Revere Copper . . . Albert Chase McArthur, Architect . . . Southwestern Mfg. and Supply Co., Sheet Metal Contractor.

Photographs by Keystone Photo Service

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Our Dealers' Catalog and Data Book with complete Specification Tables enables a dealer to safely estimate and recommend any size installation.

"WHAT & WHY WITH SILENTAIR," tells "what" Silentair Air Conditioning Units are and "why" they should be installed.

"CORRECT INDOOR WEATHER" explains the many and varied benefits to be derived from "Silentair" installation.

"SUMMER OR WINTER, CORRECT INDOOR WEATHER WITH SILENTAIR" sells Silentair for year 'round use.

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Silentair Dealers find it easy to sell Silentair Units for "they deliver the goods"—and incidentally—our dealers tell us we certainly do furnish "Selling Ammunition."

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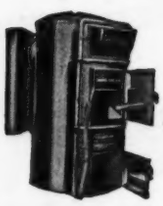

The Western coal-burning furnace is still building an enviable reputation in every state in the Union, in every province in Canada. Write for the name of our jobber nearest you.

Greater Heating Capacity

based upon Standard Code Ratings

Agricola

"SUPREME"

FOR EXAMPLE

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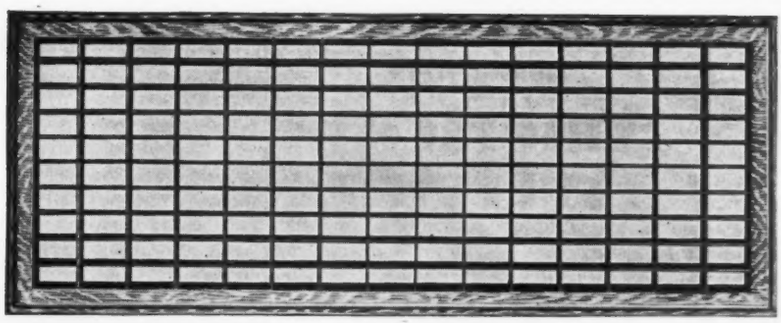
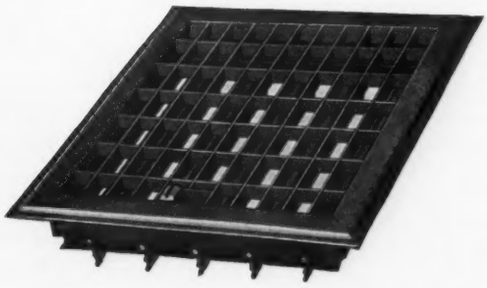


INDEPENDENT "Fabrikated" Cold Air Faces and Floor Registers



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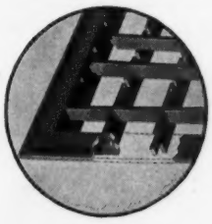

Detail of "Fabrikated" Construction

"Fabrikated" Faces and Floor Registers excel in open area . . . 82% or more, and at the same time afford maximum strength and rigidity. Newly designed, strictly up to date, their fine workmanship and excellent finish lend an air of quality to the whole installation.

"Fabrikated" Cold Air Faces and Floor Registers may be had in any size, any finish.

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Send for CATALOG *showing complete line of Registers, Faces and Grilles*

Founded 1880

American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Covering All Activities
IN
Gravity Warm Air Heating
Forced Warm Air Heating
Sheet Metal Contracting
Air Conditioning
Industrial Roofing
Merchandising
Ventilating

Member of the Audit Bureau of Circulations

VOL. 100, NO. 19

SEPTEMBER 14, 1931

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JOSEPH D. WILDER
Editor

Just how to make money installing heaters sold by the gas company is a problem many contractors have or will bump up against. In Kansas City, this situation is particularly acute. Hunt Brothers, however, have found a way to do this replacement work and make a good profit. It is done through the sale of additional accessories the gas company doesn't handle. You'll be interested in this story.

* * *

Perhaps you recall Platte Overton's article on dampers in the last ARTISAN. *It was one of the best articles of its kind we have ever published. In this issue Platte repeats* 100 *per cent and gives another equally good—this one on pressures. And best of all he promises several more on similar knotty design points.*

* * *

Jack Stowell has made a lot of speeches. We know because we have heard a lot of them personally. But so far as we can recall he has never presented a more pointed and timely address than the one reprinted here. It is just packed with excellent ideas.

Published Every Other Monday

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A corner of the Granite City Steel Company's mill warehouse

To Help Your Jobber Serve You

JOBBERS who serve the Mississippi Valley, the West and the Southwest find this mill warehouse a helpful source of supply for meeting the "hurry-up" needs of contractor and fabricator. Large stocks of sheets and plates in a complete variety of standard weights and sizes are always available for immediate shipment. Prompt delivery is assured thru an ideal location at Granite City, Illinois, served by 29 railroads and the Mississippi River.

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GRANITE CITY STEEL CO. GRANITE CITY ILLINOIS

Galvanized Sheets, Steel Sheets — Plates and Tin Plate

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TODAY'S BIG FIELD— Air Conditioning!

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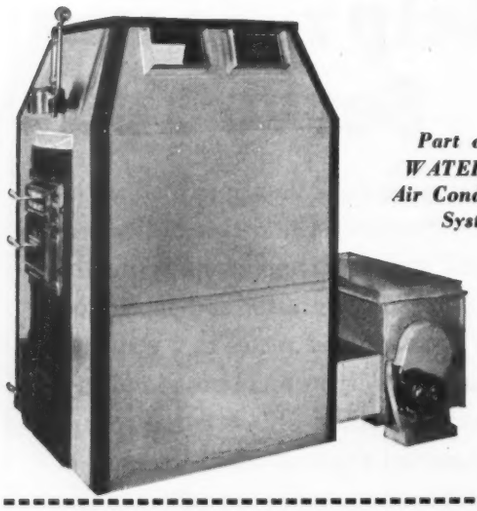
WATERBURY

Heating and Air Conditioning Equipment



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Investigate this profitable business now! Start right. The foundation for your success with the Waterbury is CLEAN heat—assured by the Waterbury Seamless Steel furnace. The fire is Sealed in Steel, guaranteed permanently gas tight.

With our complete proved air conditioning equipment, merchandising plan and engineering assistance, Waterbury dealers are steadily expanding their business and increasing their profits. Get the facts. Write us today!

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Send me complete information about the new proved, Waterbury heating and air conditioning equipment.

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City.....State.....

Say you saw it in AMERICAN ARTISAN—Thank you!

Volume 100

American Artisan
THE WARM AIR HEATING AND SHEET METAL JOURNAL

Number 19

The Growth of Metal Specialties

ALTHOUGH most sheet metal contractors have waited patiently for conditions in the construction industry to right themselves and make some volume of building possible, the 1931 building reason is nearly over and if anything conditions are worse than ever.

This situation is true of architectural metal work, ornamental metal work, ventilating and waste collection. General business has now reached the point where even repair and replacement work is contracted only after much deliberation and shopping for bids or put off another month if possible.

Undoubtedly, there seems likelihood of still further slackening of construction during the winter unless the various state and national governments launch the building programs talked about earlier in the year. But even if these all go forward there will still be a dearth of work for the small shop and some awfully stiff competition for all contractors.

So much for the pessimistic side of the picture. What about the better side? Foremost is the undeniable fact that more and more both industry and the public is turning to metal products as best suited to our present-day needs. Proof of this is seen in the widespread use of metal for home equipment, for such widely consumed products as motor cars, furniture, and all kinds of small specialties formerly made of wood.

Which brings up the metal specialty field.

What is it? At this writing it is only an infant so far as our contractors are concerned. But slowly our sheet metal contractors are getting into the specialty field. On a recent trip southwest and also east we ran across numerous firms which have established contact with buyers of metal units which can be made up on the equipment ordinarily found in a sheet metal shop.

Here is a brief idea of the things they are making.

One contractor has secured a contract from a manufacturer of an ice cream confection for small, lead clad, copper pans in which the confection is frozen. These pans look like mother's biscuit pan except that the cups are only an inch or so in diameter and some five inches deep. The manufacturer gives the pans to distributors who use his patent.

Another contractor southwest has the exclusive manufacture of galvanized iron boxes which protect gas line meters from weather. These boxes are some 2 by 1 by 3 feet in size and have a hinged door. Still another contractor in Oklahoma is making the sheet metal casing for a manufacturer of small floor gas heaters and another has built up quite a business in metal flasher signs.

In the middle west one contractor is making small galvanized pans to hold silk thread on hosiery machines. Another is manufacturing special vats on legs for holding dyes and another is making a glass and metal cabinet used to treat dyed fabrics.

Toward the east the specialties run more to such equipment as special household lockers and cabinets, in sizes not standard with the large manufacturers of such equipment. In one city two contractors have a joint contract to fabricate a line of stock watering tanks. One contractor in the middle west makes a complete line of such tanks and also a pump housing.

One progressive firm has and is making radiator shields, drain boards, safety guards, special tables, hoppers, pans, cages. And making a profit on each item.

The list might be extended indefinitely. This brief mention does not account for the contractors making metal and tin clad doors, doing kalamein work, stairs, etc.

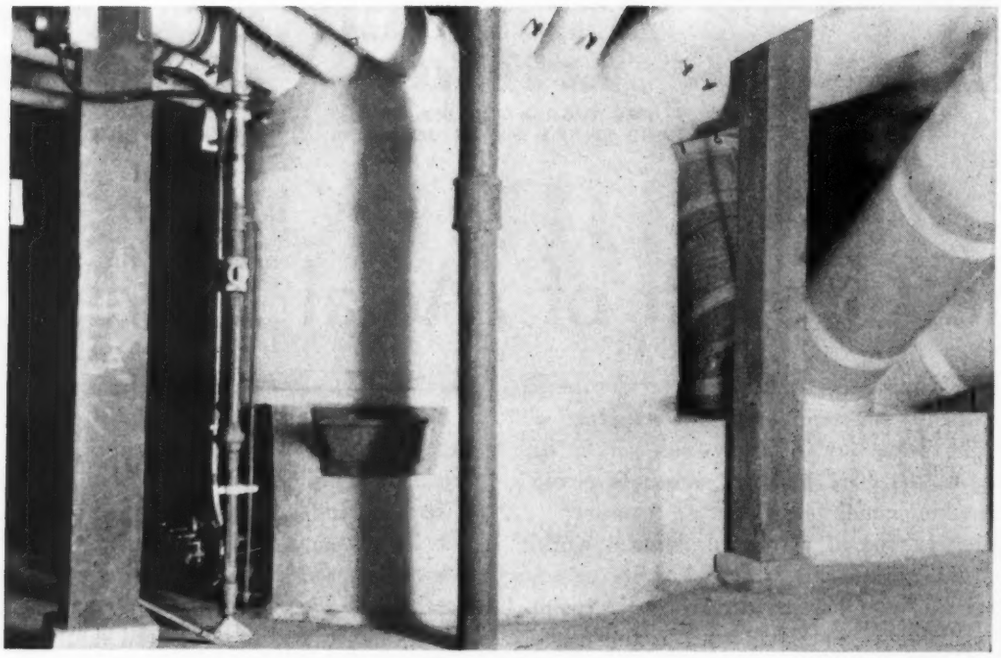
What does this mean?

First, that these contractors have found a way to keep their shop equipment and forces busy regardless of what goes on in the architectural or contracting industry. More important still, they have found that most of these specialies when rightly synchronized with shop operation pay nice profits and usually lead to more work of a similar kind.

We should not overlook such future developments as the fabricated metal and glass houses. If you think they are not on the way, just wait a few weeks and we'll tell you all about one and the heating system to be used in it. Already there are numerous styles of knock down farm buildings of metal and any and all of this can be fabricated and sold by the contractor having a shop and selling organization.

Rather than lay off their men and let their equipment stand idle, these contractors have found an article which can be made for local consumption. They are not excited about the national market—they know others have the same idea, so they stick to the local area within reach of their salesmen and shipping.

They have found this specialty business pays.



Hunt Bros. Find Replacement Profits in the Sale of Accessories

WITH new house construction reduced to a negligible quantity during the past year and one half, the warm air heating contractor has been forced to devote more and more of his selling efforts to solicitating replacement business.

Many contractors who viewed this situation with alarm a year ago have found that in spite of fewer jobs their net profits have held up surprisingly well simply because most of this replacement work has been done at better prices and greater profit than much of the speculative business they formerly secured.

This need for doing intensive replacement solicitation has also emphasized the fact that the warm air heating contractor today has the tools to profitably do work which he sidestepped a year or so ago. For example there is the apartment building, particularly the small four and six-apartment building, which can now be heated advantageously with warm air if the contractor bears in mind that with such present-day equipment as automatic controls, blowers and fans, oil burners, stokers or gas furnaces he has all the sales propaganda to interest the owner in the convenience, economy and desirability of warm air.

One contracting firm which has profited from this replacement market is Hunt Brothers, Kansas City. We reported an installation of theirs early last spring. One of the jobs they point to as illustrating the versatility of warm air rightly engineered is a small four-apartment building in Kansas City. This building is now served by a warm air system which well illustrates the ad-

"Replacement work, in our city at least, has been the backbone of our business this year. Profit from replacement work has come not from volume, but from the intelligent designing, planning and SELLING of modern equipment in such a way that the owner DEMANDS such features as filters, fans, trunk lines, automatic controls and will not be satisfied with less."

vantages of modern equipment.

When Hunt Brothers first called on the owner they found that each of the apartments was heated by its own hand-fired, coal burning furnace. In bad weather the four north facing living rooms had always been hard to keep warm. This did not make matters any easier for the owner and it was his wish that some sort of a system be installed which would first keep every room comfortable and second reduce the amount of attention necessary to a minimum.

DINING ROOM
HUNT BROS.
Since 1885
SHEET METAL & FURNACE WORKS
521-23 Westport Avenue
Westport 0140 0141 Kansas City, Mo.

Every round pipe or trunk branch is labeled with a sticker. The sticker is 5 inches wide and 3 inches high

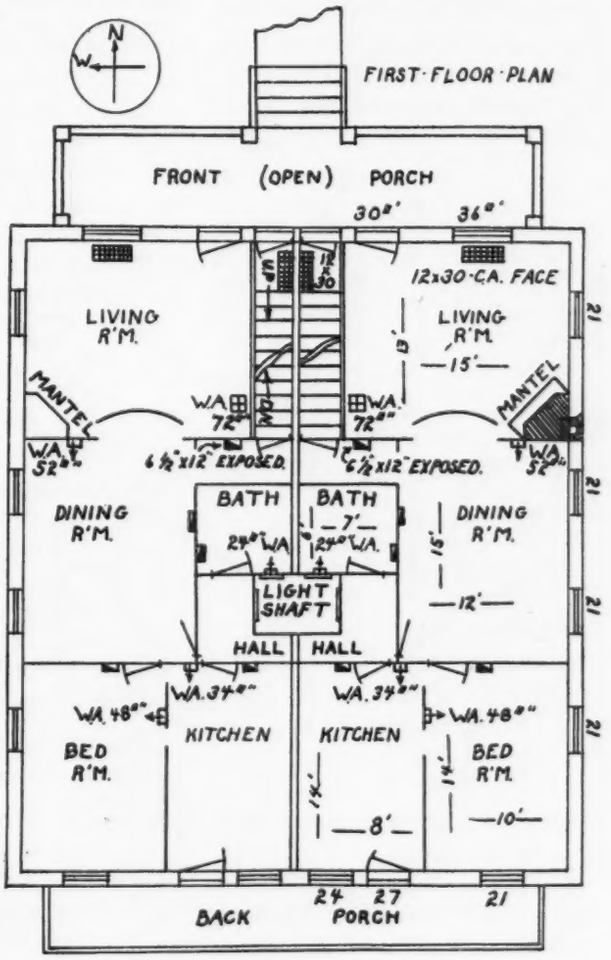
The sale of the system which Hunt Brothers recommended did not fall into their lap. Three other firms had looked over the layout and all three had stated that more than one heating plant would be required. The owner wanted a single plant. In addition, he wanted to free some of the basement space occupied by furnaces and he also wanted the plant to operate without constant attention.

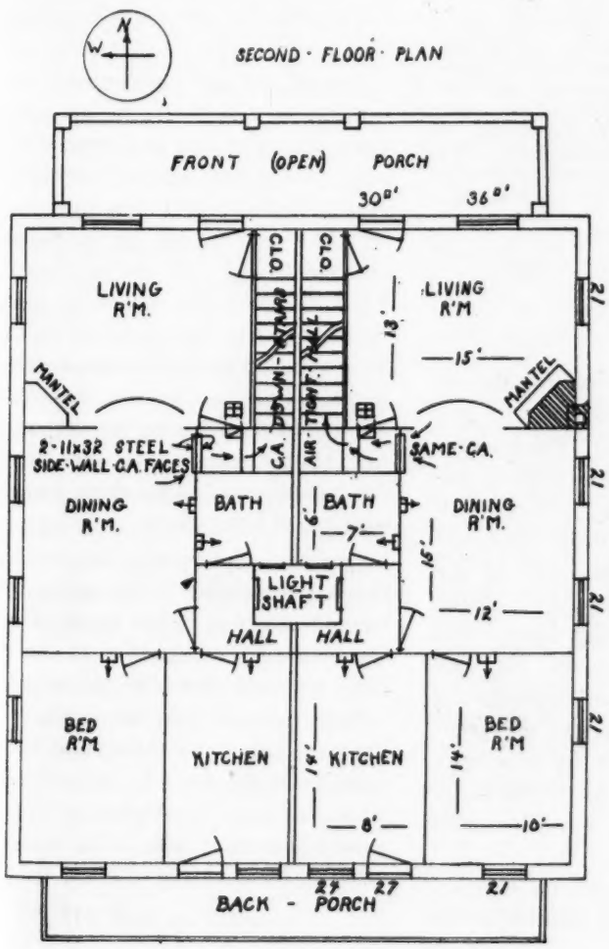
For this situation, Hun Brothers designed a system using one four-burner gas furnace, a fan to convert the system to forced air, additional heat supply for the cold rooms and an improved return air system. This return air system was badly needed in the old layout and probably accounted for some of the heating trouble.

One of the interesting things their survey uncovered was that all the air used by the old furnaces was coming from out of doors, since each furnace had one 15-inch outside air supply. Off of each of these old furnaces five 8-inch warm air leaders were taken. To make matters even more interesting each furnace had its own individual flue and these were all on outside walls, necessitating long, obstructing smoke pipes.

The new system was designed to eliminate much of this complicated basement piping particularly the "head bumpers" from outside which were only 5 feet 6 inches off the floor. To conserve cost all the old stacks and registers were used. The location of these made a trunk line

Right is the first floor plan of the replacement job. The only changes made in the warm side was the substitution of 10-inch pipes for the old 8-inch ones supplying the four living rooms. Extensive changes were worked into the return side





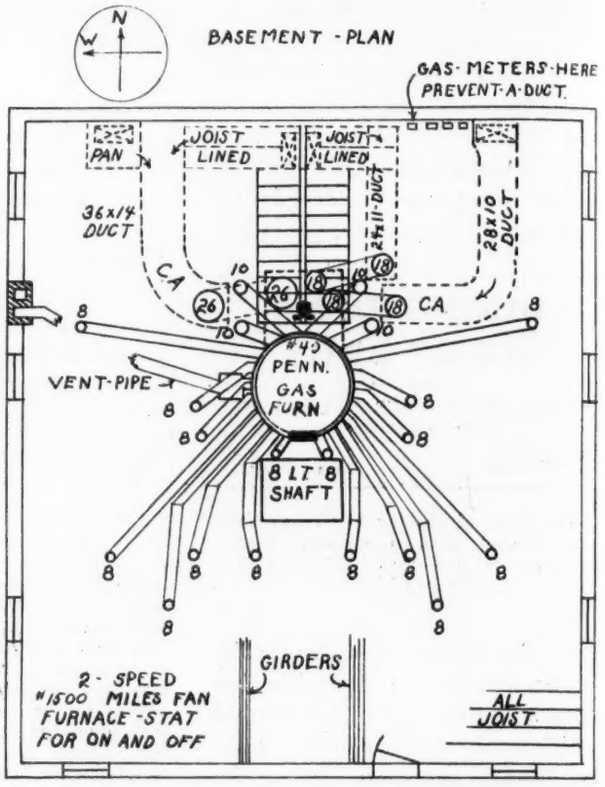
Left is the layout of the second floor apartments. The problem here was to provide a path for returning air. Grilles were cut through the doors leading to the stair hall and a large grille was placed in the floor at the bottom of the stairs

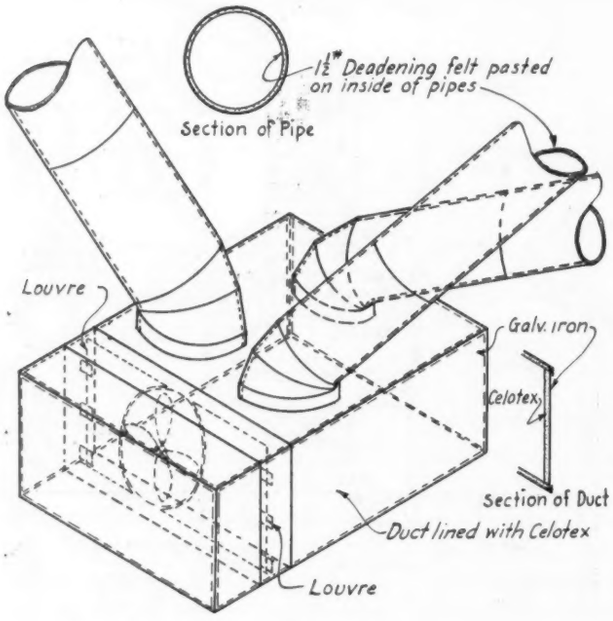
system impossible so round pipe, covered with asbestos paper was used. How the new furnace was piped shows on the basement plan. How it looks shows in one of the photographs. This photograph indicates that the new furnace is placed back against a wall with just enough room behind to drop the return air pipes into the fan box. This fan box is under the basement stairs. The new piping was held up tight against the joists to provide head room beneath.

The old 8-inch pipes were used, but recovered. In addition, the four 8-inch pipes which supplied the four living rooms were replaced by 10-inch pipes to give more heat.

Other than these changes, the warm air side of the system remains as in the old plant.

All the round pipes were used, but all pipes were recovered with paper. Ten-inch pipes were substituted for the 8-inch living room leaders. The location of the new gas furnace is such that much additional basement area is made usable. This one gas furnace replaces four small coal-fired furnaces





Left is the ingenious sound-proofed cold air box. The pipes are lined and so is the box. This system completely eliminated all noise

The return air side of the system was changed all around. The first problem was to get air from the second floor. This was difficult because there was no heavy partition through which to drop a stack. As a matter of fact the new 6½ by 12-inch stacks which feed the second floor living room registers had to be run through the two first floor apartments as exposed stacks.

The survey, however, disclosed the way to solve the problem. The stairway to the second floor is completely closed in with the walls at both ends of the treads. This gave an air-tight shaft providing the air could be given some means of getting into the stair hall. The problem was solved by placing an 11 by 32-inch baseboard grille, painted black on the baseboard of the hall and another on the other side of the partition in the second floor dining rooms. A connecting sleeve was made to pass between the two grilles. This passage through the wall into the stairs was then connected into the fan by placing a floor grille at the foot of the stairs and connecting this into the return duct.

To prove to the owner's satisfaction that this simple solution really worked, cigar smoke was loosed in the dining rooms. The drift of the smoke through the grilles into the hall proved the contractor's contention.

One of the real problems of the installation was to insure an adequate supply of heat in every apartment. The owner bought four thermostats and adjusted them to register alike and placed one in each apartment with the doors closed. Then the heat was turned on and the dampers in the basement pipes were adjusted until all thermometers registered alike. This test was run on several days having varied outside temperatures to be sure that the balance was as good on warm days as on bitter days.

One of the interesting features of the fan placement is the extensive methods adopted to kill noise. The fan housing is covered on all sides, end, top and floor by 7/16-inch Celotex. In addition the inside of the return air pipes for several feet back from the housing were lined with one-pound deadening felt pasted onto the iron. The usual methods of insulating the fan from

(Continued on page 24)

"You Must Look Quality"

Said Jack Stowell, in Address Before the Authorized Moncrief Dealers Association. Here Are the Pertinent Points of the Talk

WE furnace men need the appearance of quality just as much as to put quality into our work. It is just another way of asking people to buy, which is the big need of the furnace business today and in the future.

Co-operation is not what the other fellow does, the speaker continued. It is what you do. It may seem that one little slip will not make any difference. However, perfection is made up of small details. It is the repetition of the little things that eventually builds for the association the prestige you want it to have.

I am a furnace dealer just as you gentlemen are. I am not going to tell you anything you don't already know. I can only hope to remind you of a few things which are necessary for us to get along in times such as we are going through now.

We have got to make a profit. But profit is not a cause. It is a result, the result of quality for one thing.

Advertise Your Quality

You hear furnace men complain that if they do quality work nobody knows it. Good reason is because their job doesn't look like quality; neither does their place of business. They are trying to keep their quality a secret. We judge the quality of anything, either a product or a service, by those things which we understand. The average man cannot tell by looking at two installations how good or how terrible they may be; but he does have a keen eye for appearance, and if a job is left in good shape, carefully finished, he just naturally thinks it is a quality job.

In most towns you can take any ten furnace men, stand them in back of the furnaces they installed and not one of them can tell whose job it was. A furnace man has usually got to go back and look up to see who is handling a certain make or style of furnace in order to find out who did the job. The moral is to identify your work.

Get a Trademark

Identify the front of your buildings, your truck, your salesmen and everything about your business. When you do a furnace job, identify it. Make it possible for anyone looking down from the upstairs door to tell that you are the fellow that put in the furnace. How do you expect to build a reputation if you do not identify your work?

And it is all so easy. With strap iron you can make bands and paint them a distinctive color. Put them around your warm air pipes and smoke pipes and paint them for about 4c apiece. Adopt a similar color scheme for painting your cold air pipes and cold air pans. Put a name plate on the casing, then if you do the best job in town, people will have a chance to know something about it.

While we have got to get quality into our work, it is equally important that it looks quality, and that everything about our business looks quality. We furnace dealers have got to look quality a lot more than we do.

Suppose for a moment that you could be a complete stranger to your own neighborhood, and you looked at your shop, would it look quality?

Does it stand out from the rest of the buildings in that block as the best looking job or the worst?

When you are taking an automobile trip do you stop at the privately owned station or the one run by the big national company? Nine times out of ten it is the stations of a big oil company simply because they look quality.

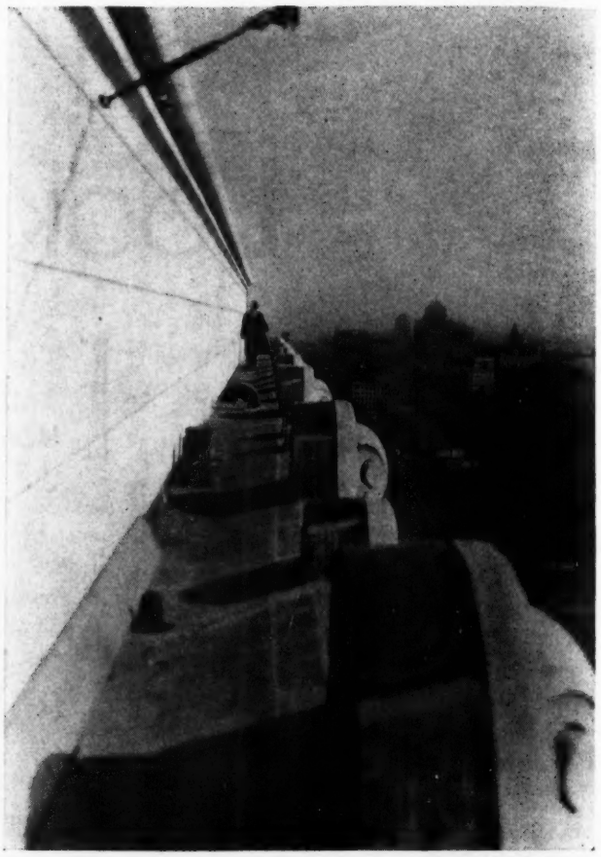
In your own home town you may trade with a small independent oil dealer just because you happen to know him. The stations of the big companies are spotless and you just naturally expect good service and quality oil because the stations look like quality. So, when you get away from home, you will pay 17c a gallon for gasoline rather than 14c because you don't want to take a chance. The small station does not look so good.

Paint Your Shop

By the same reasoning, how does your place of business really look to the eye of the stranger? Do people go around the block to some other shop because your place of business doesn't look good to them?

Particularly in these times, you have got to make your place of business look inviting. It has got to do its part in asking people to buy. You have got to dress it up, and let me tell you, it is surprising how much sales appeal can be put

(Continued on page 34)



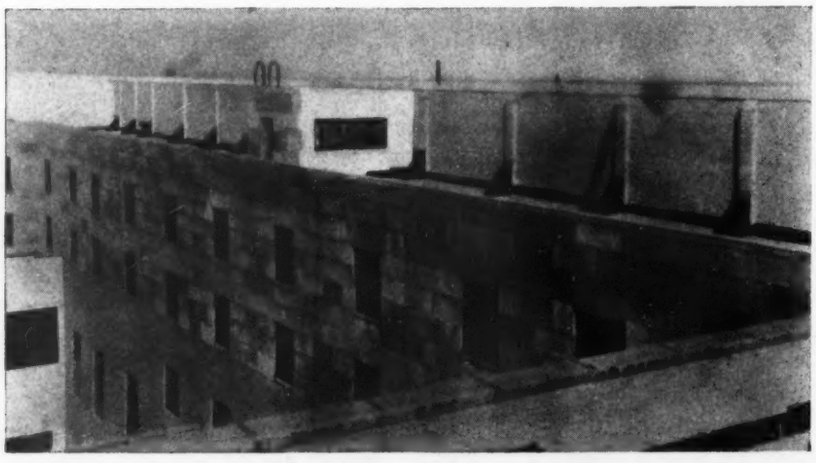
The wide gutter which lines the main cornice is sheathed in crimped copper. No expansion joints are used. The cresting is protected by special boxes caulked into the stone

Architects Generally Are Becoming Deeply Interested in Uses of Protective Metal. In Milwaukee the New Court House Uses

SHEET METAL PROTECTION

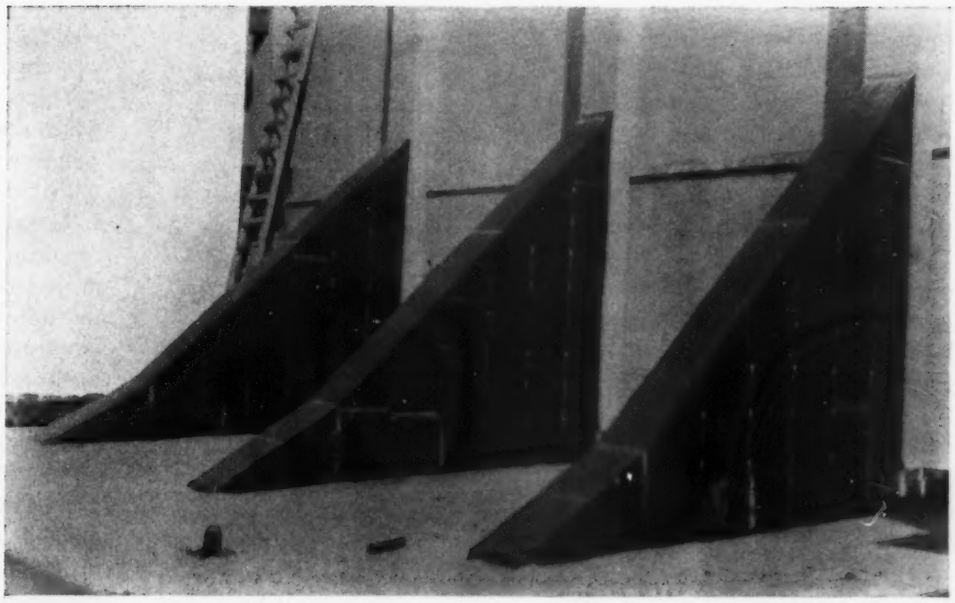
DURING the last two or three years there seems to have developed a growing demand for metal protection. This demand has come from the architects' offices. In some cities there is now a widespread adoption of good protective practice, especially on important buildings where large sums of money are invested and where this investment can be endangered by poor design practices.

In Milwaukee, Wisconsin, the architects responsible for the design of large buildings seem to have made excellent use of metal for protecting their buildings from moisture deterioration. An example of this use of metal is the new Milwaukee County Court House. This handsome structure will house the various departments of county government. The building is typical of such structure design with high ceilings and an elaborate use of ornamental stonework, some of which is well exposed and subject to deterioration from weather.



The buttresses which enforce the parapet wall on the roof are covered with soldered copper capping sections. This shows a row of buttresses. The roof flashing is also copper

In designing the building, this factor of safety of investment was thoroughly considered by the architect, Albert Randolph Ross of Milwaukee. As a means of insuring safety from weathering, an extensive use of copper was specified over all projecting stone cornices, in the spaces between the ornamental stone columns and above door and window openings where a cornice-lintel is used. Although there is no one large use of metal, such as a roof, more than 50,000

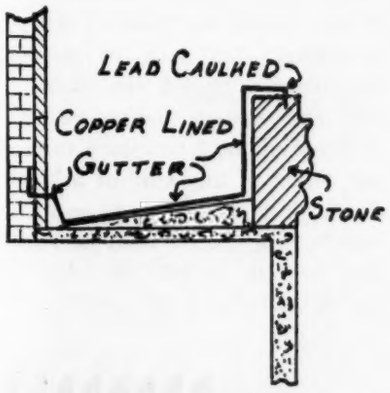


This closeup shows how the copper buttress caps were assembled on the job. All seams are soldered tight. All the edges are caulked into the masonry. Such elaborate protection is unusual

pounds of copper were used for flashing, sheathing, etc.

Most of the copper was easily fabricated, and there are no unusual metal ornamentations. The contractor who did the work is Joseph Romberger of Milwaukee.

The photographs and drawings show some of the details of particular interest. Probably one of the most interesting and also the detail using the largest amount of copper, is the protection used on the large gutter which drains the wide cornice



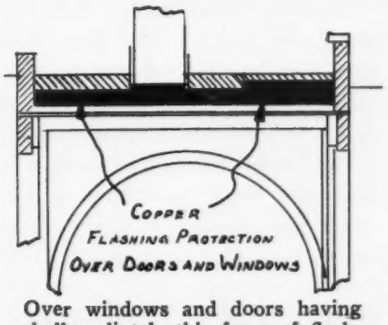
This shows a cross-section of the copper gutter around the main cornice. Note how the flashing is passed behind the stone facing. Many hundreds of pounds of lead were used in caulking

around the top of the building. This cornice has a wide projection and is composed of ornamental stonework supported on a concrete cantilever. The photographs show that this gutter is wide enough to permit two men to walk along it.

In construction, the gutter is flashed into the wall at the back with the flashing passing behind the stone face. The bottom of the gutter is lined with metal, sloped up to drain at the back through inside drains. The lining is carried forward and caulked into the top edge of the stone with lead.

This birdseye view shows a crew caulking the joint between stone and metal. The lead was heated over a stove and poured into the joint

The difficult part of this cornice was encountered in covering the high stone cresting which shows in the photograph. These crests go all around the building. To protect them a metal cap as shown in one of the details was adopted. This cap was formed as a separate piece of metal, made up of small sheets soldered in the shop. The cap turns over the top of the stone and is caulked into the stone as shown.



Over windows and doors having shallow lintels this form of flashing was used. The sheets are anchored into the wall face and caulked into the lintel edge

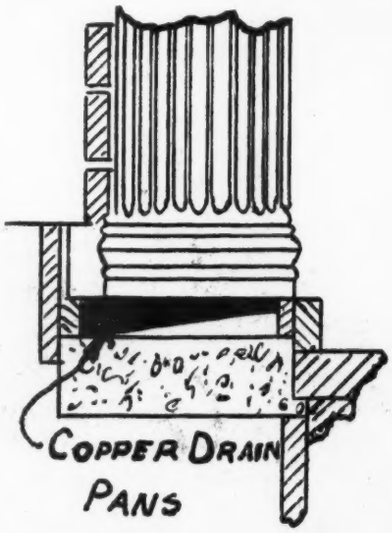
These caps are then soldered to the gutter sheets.

No expansion joints were used in the gutter, but crimped sheets were used throughout.

All four faces of the building are ornamented with tall stone columns four floors high. These columns are separated at the bases by a rectangular stone panel and the outside edge of the columns are flush with the exterior face of the building. It was deemed necessary, therefore, to provide adequate protection from water which will un-

doubtedly stand on this stone area. One of the details shows how a special copper pan was designed to form both a flashed base between the column bases and also a boxed drain for the area. These pans were used between all pairs of columns.

Another interesting use of copper is the protection provided for the buttresses which back up the high wall around the roof. In many places on the roof, this wall is an integral part of the pent houses, but in other locations the wall stands by itself. In these places large buttresses are anchored to the roof trusses. These buttresses are covered over the top and down both sides by an assembled copper cap with all seams soldered after the cap was assembled. One of the photographs shows how this metal was applied.



Each side of the building is ornamented with a row of large columns. Between the columns the deck is sheathed with a copper pan which also forms the drain head

There are several small cornices, which are really belt courses, where copper was used. A design similar to that used on the main cornice was followed. Many of the window openings have small lintels which project out far enough to warrant the use of metal to keep moisture from working behind the stone. At these points, copper flashing was caulked into the front of the stone and carried behind the stone.

This contract contains nothing of a spectacular nature, yet the large amount of protective metal used provided several months work for the mechanics, offered a nice market for a large amount of copper and gave the contractor a profit.

Replacement Profits From Accessories

(*Continued from page* 20)

the housing was also used. In operation this arrangement has shown no noise even when the high fan speed was used. This high fan speed will be used for summer circulation and is controlled by a switch in the owner's apartment.

The Pennsylvania gas furnace is controlled by a thermostat in the owner's apartment. It used natural gas with a B.t.u. content of 1,000 B.t.u.'s and a cost of 50 cents per 1,000 cuic feet. The highest gas bill for the winter was $35.20 That makes a cost of less than $9.00 a month for each apartment.

The fan used is a Miles 1500 with the louvres in place to permit gravity flow when the fan is off. The fan starts when the bonnet temperature reaches 150 degrees and shuts off when the temperature falls below 150 degrees.

"The actual work required on this job," says the Hunt Brothers, "presented little difficulties. But before any work could be done we had to do a lot of hard thinking and careful planning, intelligently directed through means of the preliminary survey. One of the things we have found is that on replacement work, anything is apt to be encountered. It is never safe to take for granted every owner's statement. All you'll have to do is take out the old furnace and slide your new one in place and connect it up." In nine cases out of ten such a procedure results in aggravating all the faults of the old system without remedying any of them.

"Many of these old systems were installed like this one; they heat when weather is favorable, but in really cold weather they fall down. When we apply the things we know about warm air heating today to these problems we quickly discover where the original installers fell down. Oftentimes it wasn't lack of knowledge, but lack of enough salesmanship to sell the owner a high class system. Today we have all the equipment necessary to give any owner of any kind of a building any kind of heating he wants, if only he will specify what he wants and then lets us tell him what we can do and what it will cost."

We are highly pleased with the number of plans sent to Platte Overton for engineering service. Users of the service write flatteringly of its promptness, low cost, and excellence. We take this as approval of our efforts to provide good engineering at low cost by a recognized consulting engineer

The First Solutions for That Aug. 17 Heating Problem

THE problem in heating which we published on page 17 of the August 17 issue certainly did bring in some interesting analyses of the trouble and some decidedly good solutions. Space will not permit our publishing all the answers in this issue, but those which we do not show in this issue will be shown in the next.

On this page are shown the problem as outlined. Here is what the contractor says is wrong. When a cold snap comes the owner finds it uncomfortable in his parlor because of drafts across the floor. These air currents seem to come from the hall and enter the dining room to drop through the cold air grille there. The owner also finds it hard to heat bedroom number 1.

WILL LEWIS

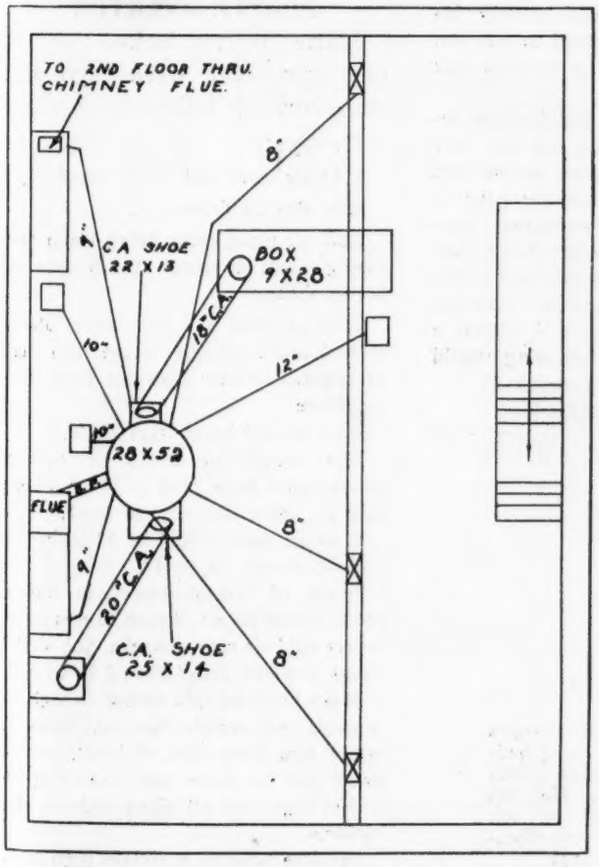
One of the interesting answers comes from Will Lewis of the Munroe Furnace Supply Company, Omaha, Nebraska. Here is what he says:

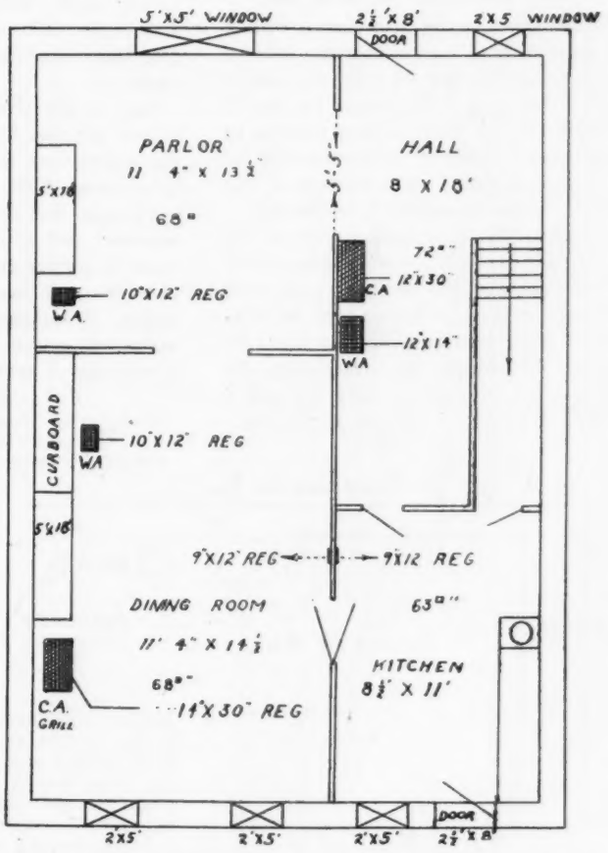
"Owing to the fact that the sketch you show is not drawn to any specific scale and fails to give the building construction material, as well as not stating the height of ceiling for first and second floors, it requires guesswork to figure this building either Standard Code or on a B.t.u. basis.

"I have figured this building on a B.t.u. basis, with 9-foot and 8-foot ceilings, and find that my engineering data sheet shows that the leader pipe sizes are the same as your sketch specifies, which was figured Standard Code.

"In checking the cold air return, the 18-inch and 20-inch return pipes in the basement has a fraction over 100 per cent of the total of the warm air leader pipes, but I feel very sure that by changing the size of the cold air in the hall, the owner will have no more trouble with drafts or cold air currents passing through the parlor to empty into the cold air return in the dining room.

"Inasmuch as this building has no cold air returns down the outside walls from the second floor, there is a heavy draft of cold air falling down the stairway which must be taken care of with an oversize cold air return, as heavy cold air falls like water and





These two drawings show the system as it is at the present. Compare these plans with the text and see where the system falls down. It is not too late to send in your solution

follows the lines of least resistance.

"I quite agree with the suggestion offered by the engineer of the furnace manufacturer, that the cold air could be moved to the parlor or living room and enlarged, and eliminate this cold air draft, but I also believe that the cold air can be left in its present location, and make a satisfactory installation.

"In the first place, owing to the fact that the cold air is falling with much force down the stairway, I would place the 20-inch cold air return to connect with the hall, and the 18-inch size in the dining room, which will take care of the cold air return in a much better way.

"The present cold air face in the hall shows a 12 by 30 size. Probably this is a steel face with a capacity of 270 inches, but if wood face it has only 198-inch capacity, which is 56 inches short in capacity to that of the 18-inch round basement pipe.

"The box leading from the cold air face over to the 18-inch cold air return pipe in the basement is 9 by 28 inches, having a capacity of 252 inches. This is a level or horizontal pan, with a low efficiency, as well as 2 inches short in square inch capacity.

"To correct this cold air trouble, I would use a cold air face 14 by 30 inches, change the size of your box to 11 by 28 inches (should have been 10 by 30 inches in the first place), with a 4-inch drop at one end in the box to speed up the flow of cold air, use a transition box and connect to the 20 round cold air pipe. I have reasons to believe your cold air stagnation will be eliminated and a greater part of the draft across the parlor floor checked.

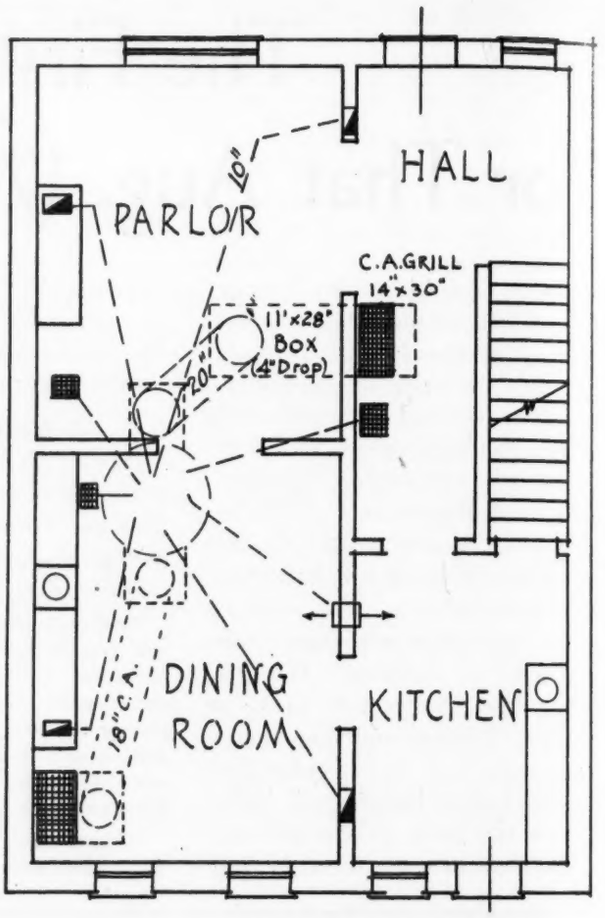
"As to the No. 1 bedroom on second floor not heating, I feel quite sure that this trouble is due to a long pipe, with small elevation of leader pipe in basement, and this trouble can no doubt be much improved by oversizing the leader pipe to this one long run and if necessary, cut in what is known as a robber pipe, which will greatly increase the leader pipe area to this run and force the warm air flow to this room.

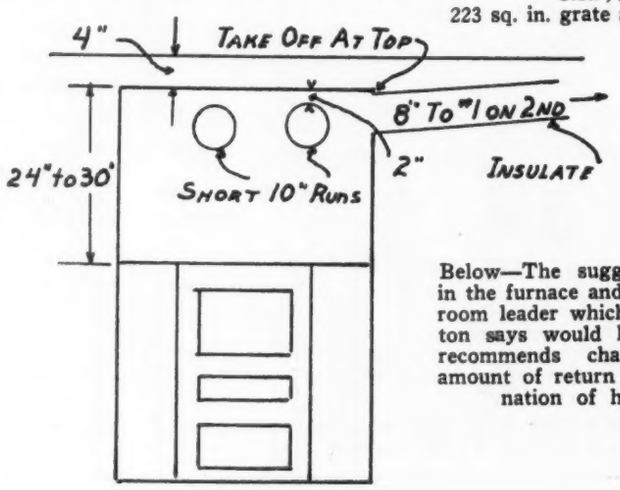
"As to the size of the furnace required for this building, will say that my engineering data sheet shows that it requires 56,070 B.t.u.'s per hour to heat this building 70 degrees zero weather, and if my engineering data sheet is correct as to 9-foot and 8-foot ceilings and construction material, which, as we said before, is rather a matter of guess, the following would be the size of grate area required:

$$\text{G.A.} = \frac{\text{56,070 B.t.u. loss}}{\text{C.R.} \times \text{C.V.} \times \text{E}^1 \times \text{E}^2} =$$

223 sq. in. grate area."

This plan shows how Will Lewis of the Munroe Furnace Supply Company, Omaha, would change the present system. His principle change is to reverse the present cold air pipes and enlarging the leader which supplies the second floor bedroom which is hard to heat





Below—The suggested changes in the furnace and the long bedroom leader which Platte Overton says would help. He also recommends changes in the amount of return air and elimination of heat loss

PLATTE OVERTON

Platte Overton looked the layout over some weeks ago and suggested the following changes. He says:

Cold air from hall is too small.

It is also inefficient.

Cold air must cross living room and dining room to reach 14x30 face in dining room.

Cold air from hall must serve about three-fourths of the house and has been made smaller than one from dining room.

Face should be at least 20/30.

Box should be 28x15 or bottom should slant from 28x9 to 28x15 where cold air collar connects to same.

Cold air pipe should be 22 inch.

Boot should be 30x14.

"Area of low pressure" in dining room causes all air to rush to this point where cold air return works "too well." "Low pressure area" should be in hall.

Make hood on this casing as high as possible and straight flat top. Take all warm airs from side of hood, and if hood can be made not less than 24 inches high, run all pipes without elevation.

Insulate hood to maintain high bonnet temperature.

See that windows in living room are tight, as this is pressure side of house.

Insulate long 8-inch run to bedroom No. 1 with ½-inch air cell asbestos to maintain temperature.

See that there is no outside opening to flues in which stacks are placed to heat second floor rooms No. 2 and No. 3.

I do not know anything about this heater, but it should be large enough, if the number 28-52 is any indication of size.

Bedroom No. 1 should have door into hall trimmed at base about 1 inch for return to hall.

B. F. JOHN

Our good friend B. F. John of Philadelphia says we did not give quite enough data, but from what we did publish he recommends as follows:

"The heating problem on page 17, August 17th issue, presents the wrong placement of the registers and returns.

"First to check up on Standard Code or B.t.u., the ceiling heights should be given; the figures look as though the 1st floor is over 11-foot ceiling and the second floor less than 7 feet. The prevailing wind appears to be the back of the house, taken from the situation of the heater.

"There are 55 feet of glass on the front wall; hall and parlor, and no heat is distributed in front of the stairway. The floor register, 12 by 14 inches, in rear hall, feeds the upper hall, with about 200 cubic feet of air to combat to get to the front. The register to the parlor being in the extreme rear, also has difficulty in heating the front part of the parlor, especially during colder weather.

"If the return in front hallway was placed between the front window and the base of the stairway, as near to the bottom of the stair as possible, and the register placed in the partition at the front door, then the current of air coming from the front door and window would be preheated, and prevent it, when cold, from entering the large 5-foot 5-inch parlor door.

"The rear parlor register should be moved front on the partition between the hall and door to warm the large 25 square foot window in front.

"The back parlor register and the dining room register combine to heat the space between them, and the rear cold air return in the dining room draws the excess heat to the rear, thus heating the dining room, which no doubt is always warm.

"If I had the ceiling heights and prevailing wind side and the average outside temperature, I could work this out further.

"If the figures in the heater mean a 28-inch pot and 52-inch casings, there is double the amount of heater he requires. It's the position of the registers here that are important."

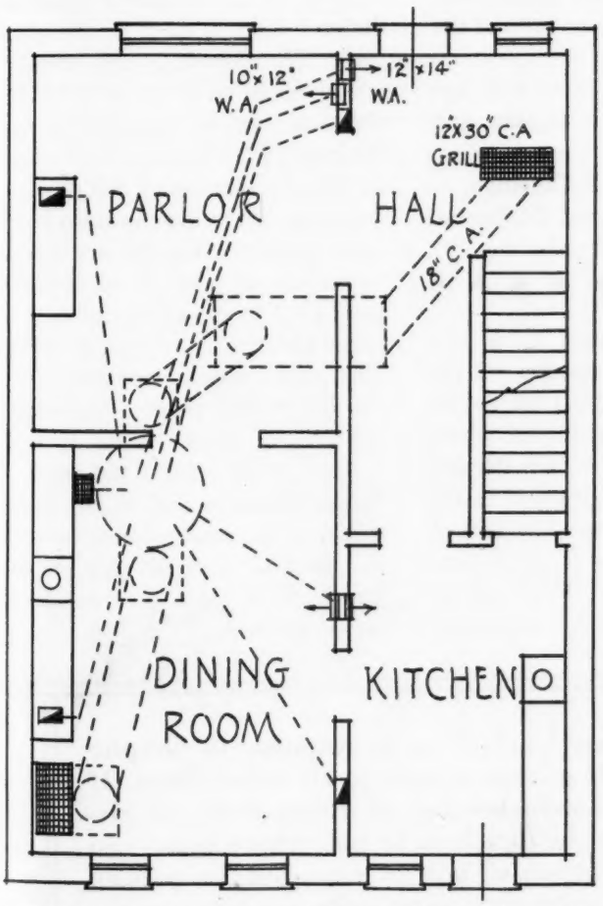
G. E. G EISELE

The last solution we have space for this time comes from George E. G. Eisele of Madison, Wisconsin. His solution is as follows:

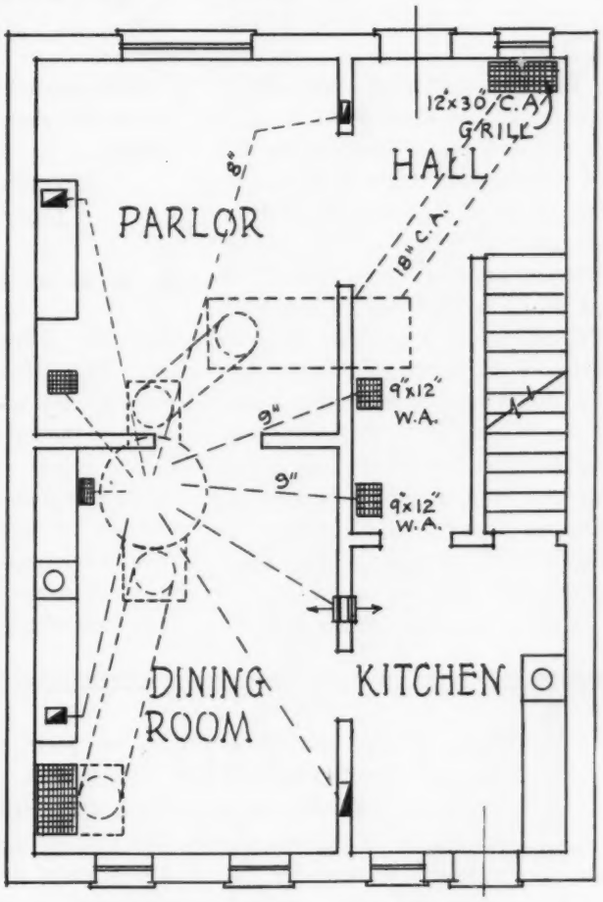
"In checking over the problem presented in your issue of August 17, it is our belief that the contractor will find its solution by the following changes in installation.

"We believe that if the cold-air face in the hall is moved to the outside wall beneath the window next to the door there will no longer be a draft through the parlor into the dining room.

"We also believe that the 12-inch heat pipe which runs into the hall steals the hot air from the 8-inch pipe which heats bedroom No. 1, and we think that two 9-inch pipes running into the hall would heat that space more efficiently and, at the same time, give the 8-inch pipe to the bedroom a chance."



This plan shows how B. F. John of Philadelphia would change the system. Note his relocation of the hall cold air and the addition of a hall leader



George E. G. Eisele, Madison, Wis., suggests a change of location for the hall cold air, also more heat to the hall. Read his interesting reason for switching pipe sizes

A 90-Degree Offset in Rectangular Pipe

For S. E. Coleman, Los Angeles

By **W. R. HAINES**
Contributing Editor

THIS week's layout is a request problem from Mr. S. E. Coleman of Los Angeles, Cal. He asks for a 90-deg. elbow in a 3x2-in. conductor pipe going around the corner of the house, with a downward pitch all the way around, but I have called it a 90-deg. twisted offset in rectangular pipe. As no measurements were given, I have set the plan view ½ in. from corner board on house and used 1¼-in. radius for throat of elbow, 3¼-in. for heel, and 8 in. height on both elevation and end views. On the 3-in. side, I have used a 6-in. radius.

First in your plan view, divide the throat into equal parts, as 1, 2, 3, etc., and extend lines out to heel of elbow from radius point, to locate points 1′, 2′, 3′, etc. Next draw elevation by using a 6-in. radius, stopping arc at *a*. Drop lines 1 to 6 on plan to dotted line on elevation. Project points 1 to 6 to intersect points 1′ to 6′ dropped from plan. Draw end view by projecting points 1′ to 6′ and *a*′ to *f*′, using 6-in. radius from bottom side, as in elevation. In development A, *x* equals distance from 1 to 6 on plan, or algebraically, divide *x* into equal parts, and develop as shown.

I could not show on the drawing just how development C is laid out. The straight portion of the development was scaled off and is equal to the length of the arc whose radius is 6-in. That is, it is the distance along the arc from 6′ to the base in the end view. The rest of this development is a spiral, and was developed by triangulation. The base of triangle A is scaled distance from 5′ to 6′ in the plan view. The altitude of this triangle is the height of 5′ above 6′ in the elevation view. The hypotenuse of this triangle is used as the radius for the arc from point 5′ on development C. The base of triangle B is the scaled distance from 5 to 6 in the plan view, and its altitude is the height of point 5 above point 6 in the elevation view. The hypotenuse of this triangle is used as the radius for the arc inscribed from point 6 on development C. The base of triangle C is the measured diagonal distance from 6 to 5′ in the plan view. The altitude of this triangle is the height of 5′ above 6 in the elevation view, which is the same as the height of 5 above 6 or 5′ above 6′. The hypotenuse of this triangle is used as the radius inscribed from point 6 intersecting the arc whose radius is *r* at point 5′ on development C. The arc whose radius is *u*, is the distance from 5 to 5′ in the plan view, and is inscribed from the determined point 5′ intersecting the arc whose radius is *s* at point 5. With point 5 and point 5′ known points, 4 and 4′ are determined in the same manner, and so on. Both sides of the pipe are the same, so the same development C serves for both.

Mr. W. R. Haines, Contributing Editor, American Artisan, 139 North Clark St., Chicago, Ill.

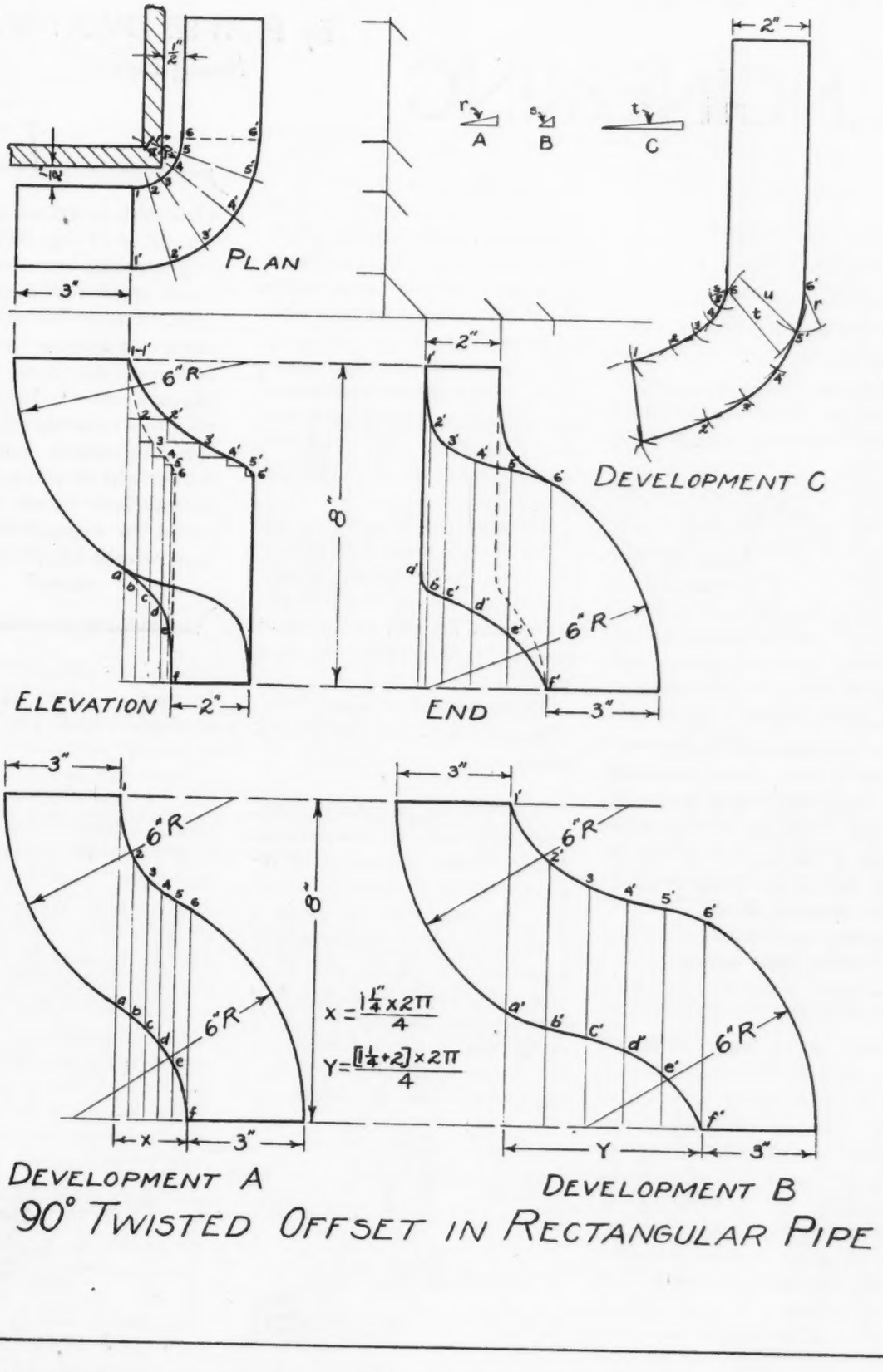
Dear Sir: I wonder if you would be kind enough to explain a little layout problem for me. I watch your layouts in the American Artisan every month.

The layout I have in mind is a 2x3-inch down pipe that comes down the side of a house and goes around the corner and on down to the ground. The pipe must have a pitch as it goes around the corner.

Will you please print this layout in the American Artisan, and oblige,

(Signed) S. E. Coleman,
Los Angeles, California.

Many of the patterns which we publish are worked up in response to definite requests from readers for assistance. This service is open to all subscribers. If you have a problem, send in a complete sketch showing all dimensions and giving all information about the use to which the item is to be put, where seams can be used, and so forth. A completee description of how to work out the pattern will be published as soon thereafter as possible



Here are the various patterns needed to lay out this fitting. The method used to develop this pattern has been worked out to be just as simple as possible and also as rapid a method as possible to conform with shop requirements. The text explains in detail the steps necessary

FAN BLAST ENGINEERING

By PLATTE OVERTON
Heating Engineer

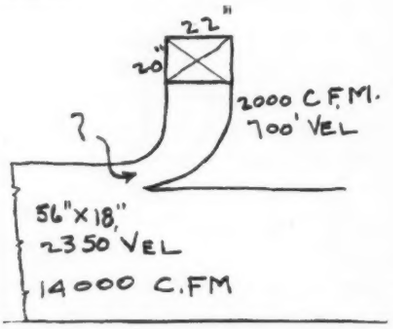
This article opens a series which will explain the engineering reasons behind approved design details. The series will cover such problems as pipe friction, dampers, branch throats, elbow formation, plenum chambers, register deflectors, etc. The series will be open for full discussion. You are invited to suggest features you would like to see discussed

The "American Artisan,"
139 North Clark St.,
Chicago, Ill.

Attention: Mr. Overton

Dear Sir:

I have been following your articles in the "American Artisan" and have learned very much from them.



Now I have been stumped more than once with problems like this: "Would you be kind enough to tell me how to arrive at the size of the throat opening in the following sketch."

Thanking you, I am
Very truly yours,

THE above letter (one of many) discloses the desire and the necessity of a series of articles covering the practical application of formulas, tables, and charts, to the design of properly proportioned duct systems.

In the design of piping systems there are many variables to be considered. In the following articles we will attempt to be as practical as possible. While definite rules cannot be applied to all cases the general procedure will be much the same.

Proportioning the flow in pipes is based on varying the diameter and velocity in the mains and branches to provide for the various losses. The designer should have an understanding of what is going on inside a duct through which air is being forced.

The letter with the above question is going to remain unanswered until the articles are complete and then the writer solicits answers from the "fans" who have followed the articles.

The mains and branches of any system of trunk ducts in the following articles will be designed to equal friction per running foot. We will assume that the duct in the above question is designed in the same manner.

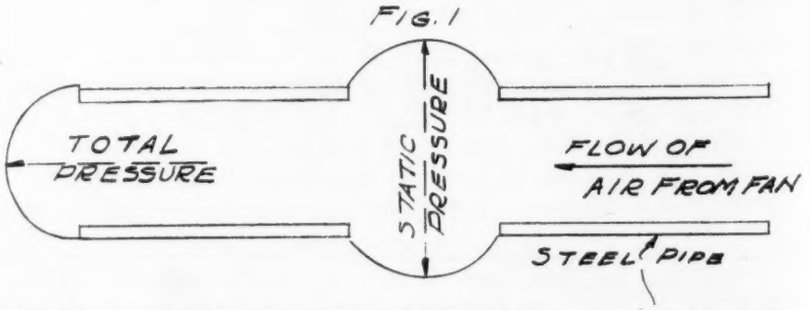
"Equal *friction* per lineal foot." What is friction. This is our first article.

* * *

In conducting air for heating, ventilating, and air conditioning through ducts, we encounter resistance. This air must be forced from the place where we obtain it to the place where we discharge it at the grille or register. Energy is expended in this work and it is necessary that we know how much energy will be required before we can size the apparatus such as fans and motors. The size, length and shape of our ducts also enter into the required energy (power) and we should keep this in mind when we size our piping.

The energy spent in the performance of this work we will term "loss," "pressure loss," "friction loss," or "static pressure loss," or "resistance." Any of these terms may be used. While the flow of air in heating, ventilating or air conditioning ducts takes place under relatively small pressure differences as compared to the pressure in steam boilers or water pipes a loss there is and it must be compensated for.

FIG. 1



This diagrammatic drawing shows what the three pressures of forced air heating are and look like. Overton explains this by using a section of pipe and two rubber covered openings

This air under flow in ducts is under the influence of three distinct pressures, namely—velocity, static and total. The velocity head or pressure (V. P.) is the pressure that is required to move or accelerate the air from a stand still to the required velocity.

The static head or pressure (S. P.) is the resistance which is maintained by the confinement of the air in the pipe or that pressure that would tend to burst the pipe. The total pressure (T. P.) is the sum of the two above pressures.

Figure 1 and Figure 2 are sections of steel pipe through which air is being forced. We have placed a thin piece of rubber over the space between the two sections and one over the end of the pipe. The pressure that would tend to inflate the rubber between the two sections is static pressure (S. P.). The pressure that would tend to blow the rubber from the end of the pipe is termed total pressure (T. P.) as here we have both static and velocity pressure. If we deduct static pressure from the total pressure we have velocity pressure (V. P.).

We refer to Figure 3 and see a pressure fan or blower to which we have connected two ducts, one to the intake and one to the discharge side. We have, of course, two losses, one at "A" and one at "B." Where return or outside air ducts are used to conduct the air to the fan both losses must be considered. This is true of any fan installed in a confined fan room, regardless of ducts not being connected direct to the fan intake.

On the discharge side of the fan "A," Figure 1 gives us the pressure characteristic. At "B" we have those characteristics shown in Figure 2. Our air in the pipe at "B" is below atmospheric pressure and if we were to punch an opening into this duct the draft would be "in."

In heating and ventilating and air conditioning ducts resistance is measured in "inches of water column." This "inches of water" refers to the height of water in inches that the pressure would force the liquid in a U tube one inch in diameter or .7854 sq. in. in area.

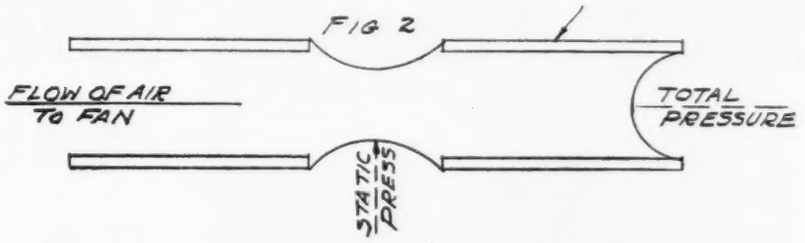
Figure 4 shows us how the various pressure losses are read. The readings are for the discharge side at "A." In the case of "B" the readings would be negative. In this case the total pressure reading is always less than the static reading, and when the static pressure is subtracted from the total pressure the result is positive. (V. P.) velocity pressure is always positive.

U tubes are not generally used in the measure of resistances. Draft gauges calibrated to the equivalent inches of water are more practical.

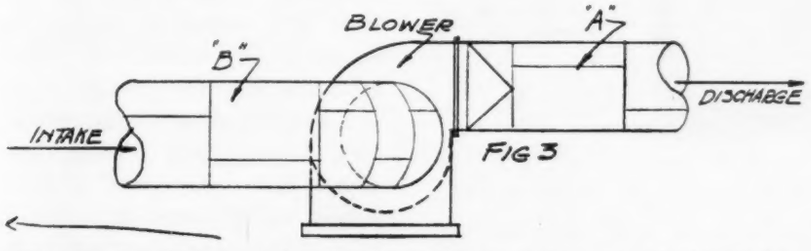
While the movement of air is influenced by its temperature and also by the amount of moisture it contains for our problems we will disregard these items as being too complicated for our consideration. The calculations necessary to estimate these power differences are given in textbooks for those who wish to go further into the problem.

We will neglect them in these articles as they will have little or no effect on our ordinary problems.

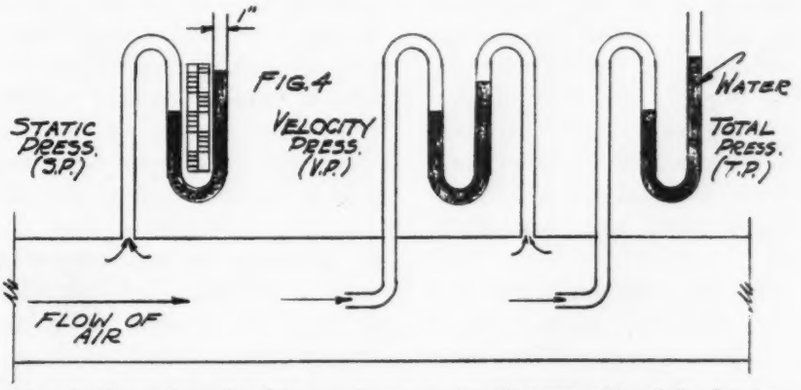
Most heating and ventilating systems have over one resistance of from ¼ to 1½ inches. In warm air fan installations in residences pressures vary.



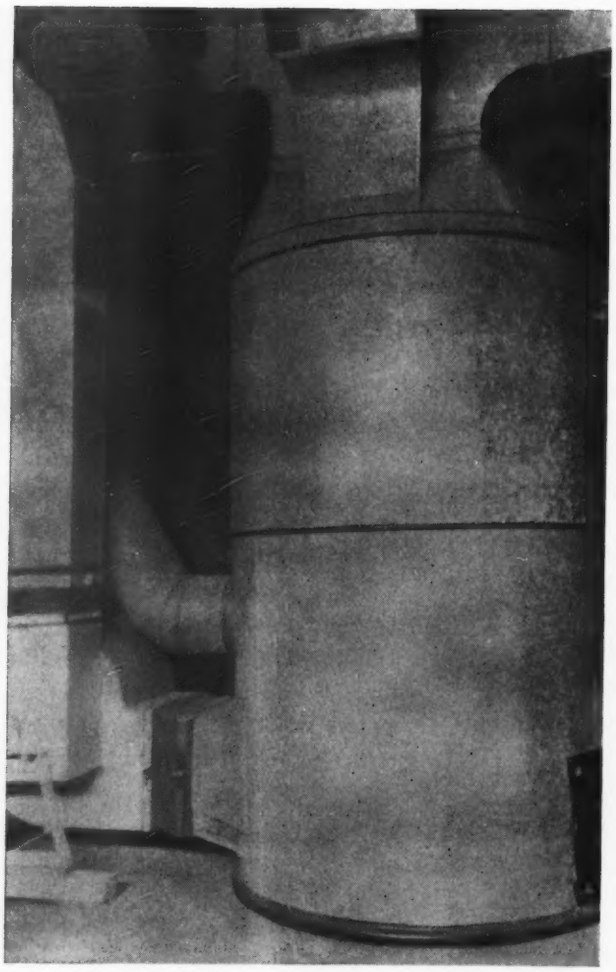
This shows how resistances are reversed on the cold side of the fan. Pressures are "in" but are still resistances. Reading a draft gauge in this pipe would show "negative" pressures



Many heating men forget that there is resistance on the return air side of the fan as well as on the discharge side. Both resistances must be considered. Neglect of this loss often accounts for complaint about "under-capacity" fans



Here is shown how the three pressures on the discharge side of the fan are read. These tubes are graduated in "inches of water." If you have heard this term but didn't understand it—here is what it means by picture



The Piatt furnace was placed as far back in the corner as possible. The blower is against the outside wall. One of the trunks shown supplies two floor registers — living room and dining room—which are outside the basement. All trunks are flat up against the joists or run between the joists

LUDWIG & HARDIN SAY— Automatic Will

"THE oil burner salesman is not the only fellow who can make an old installation appear obsolete and make a long profit sale by talking about the advantages of automatic heating. The warm air heating contractor can do this just as well, if he makes up his mind to go out and sell."

That in a "couple of nutshells" is the mental attitude of both members of the firm of Ludwig and Hardin, warm air heating contractors of Ottawa, Illinois. And to prove that they can follow their own advice, they have several nice jobs of recent completion, in which the idea of automatic heat was successfully sold.

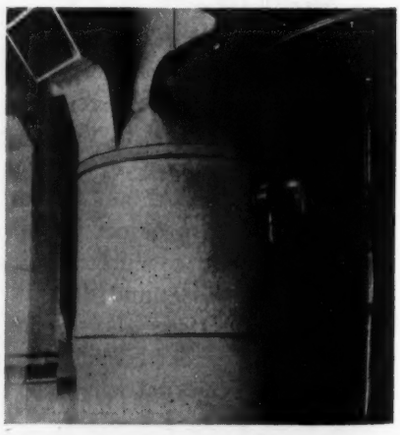
The two members of this firm admit that they haven't always held this opinion. Like many other contractors both members were content for many years to go along with the rest of the trade and take what business came in the front door as a result of long acquaintanceship. However, more business was needed and as the only way to get it seemed to be to get out and hustle—get out and hustle they did.

Active selling has not been the only change effected. In order that an accurate knowledge of costs might be kept, a modern system of bookkeeping was installed under the supervision of Joseph G. Dingle who wrote those excellent cost articles in AMERICAN ARTISAN in 1930. This system enables the firm to know just what every operation, both in the shop and on the job, is costing, what kind of work can be profitably pursued and what should be let alone. This knowledge of how the business is going, coupled with renewed selling energy, has enabled the firm to meet the conditions of 1931.

There is in Ottawa a sales field typical of hundreds of the smaller cities. There are a number of manufacturing plants, but no one big company which makes business good or bad according to its pay roll. There are many fine old homes, occupied by persons having independent means; there is a small, but rather steady volume of new construction and a like activity in remodeling. Of most importance to the salesman of heating equipment, however, is the pride of home ownership found among the citizens. It is on this feeling that the salesman of modern equipment must and does play strongly.

Like many other heating contractors, Ludwig and Hardin have found that replacement work is easiest to get now-a-days and in most instances most profitable. So the replacement field has been thoroughly canvassed.

To meet the demand for equipment which gives automatic operation, Ludwig and Hardin sell a unit warm air and oil burner furnace. The whole plant is sold complete under one casing. In addition,



The laundry corner had to be heated through a special outlet

Heating, Aggressively Sold, Break Down Sales Resistance

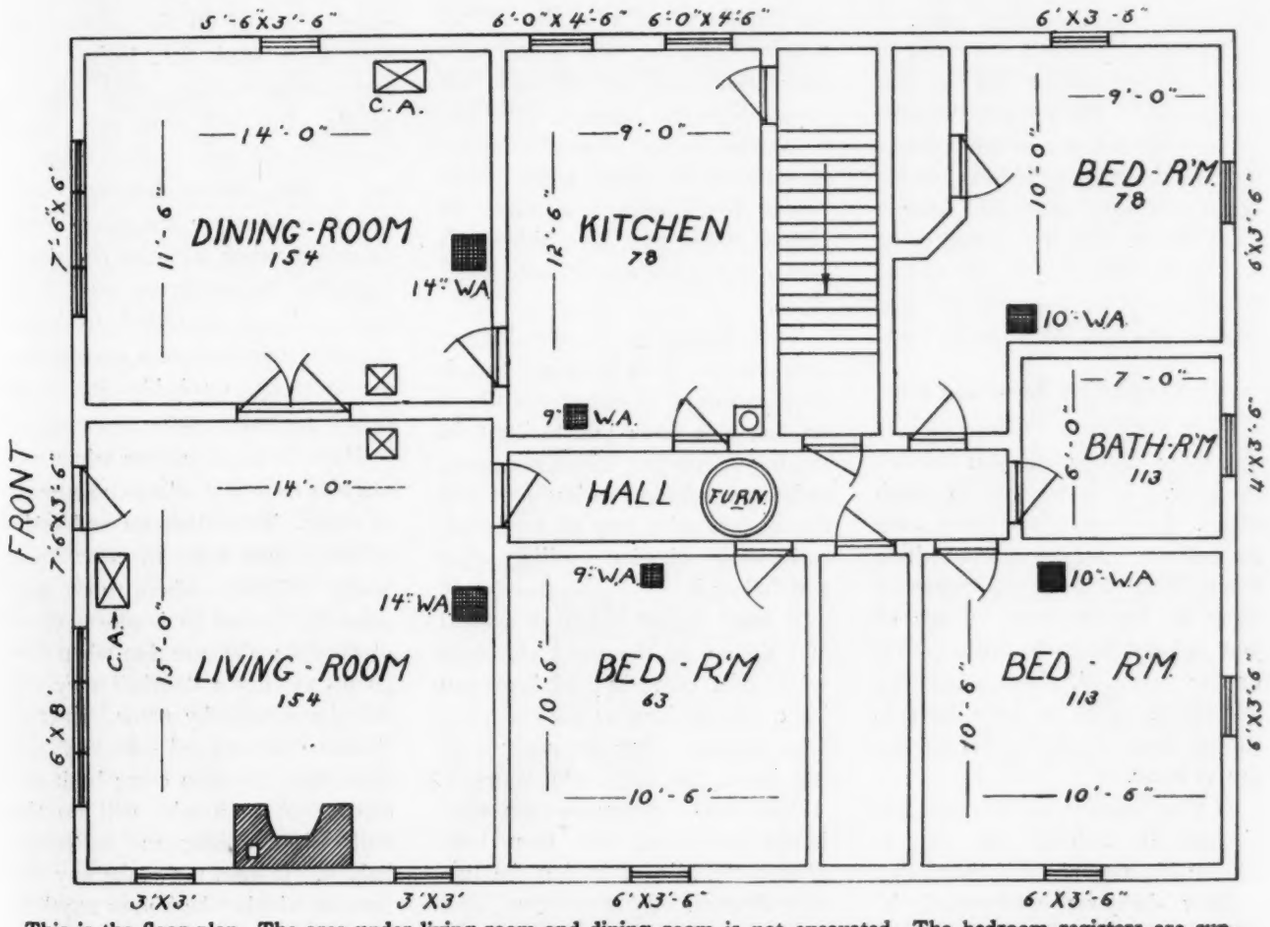
for those home owners who prefer and insist on coal, the firm is now preparing to merchandise a stoker. Through these two pieces of equipment the firm believes that they can meet the demands of all home owners wanting automatic heat.

The illustrations and plans on these pages show details of a typical oil burner installation sold by this firm. The particular house is a one-story bungalow of the better class. Originally it was heated with a coal fired furnace which gave satisfactory service, but the owners wanted a plant they could turn on in the fall and off in the spring and forget about in the meantime. They were logical prospects for an oil burning furnace.

In inspecting the system prior to closing the sale, a check against Standard Code showed that the registers were well placed and that for the size of the house the return air was adequate. So the installation was sold as a strictly replacement.

In making the change, however, one important feature was emphasized to the owner. That feature was that the new plant would use forced air rather than gravity, the furnace could be placed in the most out-of-the-way position in the basement. Accordingly, the owner made a survey of positions and chose one at one side of the foot of the stairs and against the outside basement wall. On the plan the furnace seems to be right in the center of the basement, but the basement ends under the partition which divides the living-dining rooms from the kitchen-bedroom.

This necessitated bringing the



This is the floor plan. The area under living room and dining room is not excavated. The bedroom registers are supplied by a trunk run between floor joists

living room and dining room return air through the space under the floors of these rooms and in through the basement walls. The warm air leaders to these rooms, being located right at the partition, were put through the floor right over the basement wall. These leaders were heavily insulated.

Since one of the features stressed was the ability of the new plant to use trunk line ducts, the other registers in the kitchen, and the three bedrooms were all taken off one trunk. In order to conserve head room, practically the entire height of this duct was sunk between the floor joists. A similar construction was employed in placing the trunks for return air. In order to give a good, tight job all these ducts were full top, bottom and two sides and not just lined joist spaces.

In order to simplify erection, the contractor worked out a plan in which the duct sections were delivered to the job as a two folded sheet. In other words, the duct as received by the workmen consisted of the top and two sides. These sections were nailed into the joist space and then the bottom was applied to formed flanges and seamed in. Under this system erection was greatly simplified.

Briefly, here are the calculations for the various rooms. The living room is supplied by 154 inches of warm air leader and return air exhausted through one 22-inch pipe. The dining room has 154 inches of warm air and uses another 22-inch return air. One mistake is shown on the plan. One bedroom and the adjoining bath are supplied through a double headed riser supplied with 113 inches of warm air. The other bedrooms are supplied with 63 and 78 inches of warm air, respectively. No return air is taken from the back of the house. The totals for the house are 640 inches of warm air and 760 inches of return air.

One interesting feature developed after the plant was in operation. It was necessary to tap into the bonnet with a stub leader as shown in the photograph in order to give a comfortable temperature in the laundry corner of the basement. The radiation from the furnace was not enough to keep the basement warm.

You Must Look Quality

(*Continued from page* 21)

into the front of your shop with about ten dollars worth of paint.

How about yourself when you go out to sell a furnace? Do you look prosperous? Do not get the mistaken idea that a customer thinks you are going to "gyp" him just because you look clean and have a clean shave. On the contrary, he will think that the job you can do for him will be a quality job just because you look like a quality man.

Your Truck Can Advertise You

How does your truck look? I see quite a few of you fellows laughing. It is nothing to laugh about. I venture to say there is not an industry in the world whose trucks look so uniformly rotten as those of furnace men. Some of you fellows have old trucks, four or five years old, which when they go fifteen miles an hour look as though they were flying, the fenders are so loose.

If your name is on the truck, the chances are nobody can read it. Maybe it's a good thing they can't.

How do your workmen look? When they go out on a job do they do you credit? Do you know that you can buy overalls for about $1.65 a pair? You can have a suit with your own name on the back for about 35c extra. Also, overalls can be washed—costs about 25c. Some furnace men don't know these things, for I have seen many an overall that was so thick with grease and grime that it could stand alone.

This brings up to the biggest point of all. You have got to ask people to buy. Whether you like it or not, you have got to start in ringing doorbells. There are going to be fewer dealers in business, and the dealers who stay in are going to be those who have selling sense and follow it.

It won't do for you to sit around and dream of the good old days when jobs came in and kept you busy. Them days, as they say, are gone forever. They are never coming back. So don't kid yourself.

The most successful house to house canvassing has been built around the idea of having the furnace cleaned. If you mention a new furnace, out you go.

Starting with your customers, make a list of all the people you have done work for, listing your best customers first. Pick out 25 people. You will go up and ring a doorbell and say, "Mrs. Jones, I am in the furnace business. Do you remember we did some work on your furnace last year (or whatever the circumstances may have been). I am interested to know whether your furnace is performing satisfactorily, probably it needs cleaning," and so on.

There is never a time when you can hire desirable salesmen so easily as today. Take them on and make a few simple rules to cover their work. Tell them where to go, give them the names and addresses of prospects, make sure that when they go up to ring a doorbell they can call the woman by name. Instruct them on how to tell the story, and insist that the man come back and report. A man who will do this will sell something and he cannot help it. It does not make any difference whether he knows anything about the furnace business or not."

SOME COMMON ERRORS IN VENTILATION DESIGN AND THEIR REMEDIES

By **R. C. NASON**

TIME and again one observes mechanical fans connected to sheet metal duct work so poorly designed that the fans have been rendered largely ineffective. Building owners, having witnessed such conditions, fail to be impressed with the value to them of mechanical ventilation and so continue the use of the open window instead.

One of the errors frequently seen is that shown at the left in Fig. 1, which is wrong for two reasons. First, the extension of the vertical duct below the main that carries the foul air exhausted from building interiors by the elèctric fan seen provides a sediment pocket.

The air current, delivered directly against the side of the riser, bounds off at its lower part to fill the badly designed bottom pocket in the duct. Here turbulence is set up that interferes with the natural, upward flow of the air being exhausted and so impedes the effectiveness of the fan.

The other mistake in the installation shown at the left of Fig. 1 is that when air is delivered straight at a perpendicular surface, such, for example, as the back wall of the duct shown, the quantity of air that the fan will handle is diminished. The effect is exactly the same as if one were to take a pail of water and throw it against a fence. If one wishes to experiment he would best stand away some distance or he will be badly soaked with the rebound.

Note that in the right hand illustration of Fig. 1, the correct way to finish the bottom of such a duct, the outward corner is rounded gracefully and there is no extension below the level of the main. Thus the exhausted air, instead of striking a perpendicular surface, strikes a rounded one, slips off naturally and passes directly up the vertical duct.

Frequently one observes a branch duct connected to the bottom of a main, as shown at the left in Fig. 2. This "horrible example" has two errors. First, the branch connection into the bottom of the main and, second, entering the main at 90 degrees.

Examinatiaon of what transpires within the interiors of ventilating and material handling mains would demonstrate that the center of the duct carries the heaviest load, the upper section next and the bottom the least, except when heavy materials are being exhausted. When a branch enters at the bottom of a main it interferes with the air stream within, sets by turbulence by increasing back pressure and lowers the effectiveness of the system.

It is for much the same reason that branches should enter main ducts at an angle of about 45 degrees in the direction of the air flow of the main. This reduces interference to a minimum and provides positive suction within the branches at the same time.

Sheet metal contractors realize that it is easier to design and form main ducts if the branches are to enter directly opposite one another

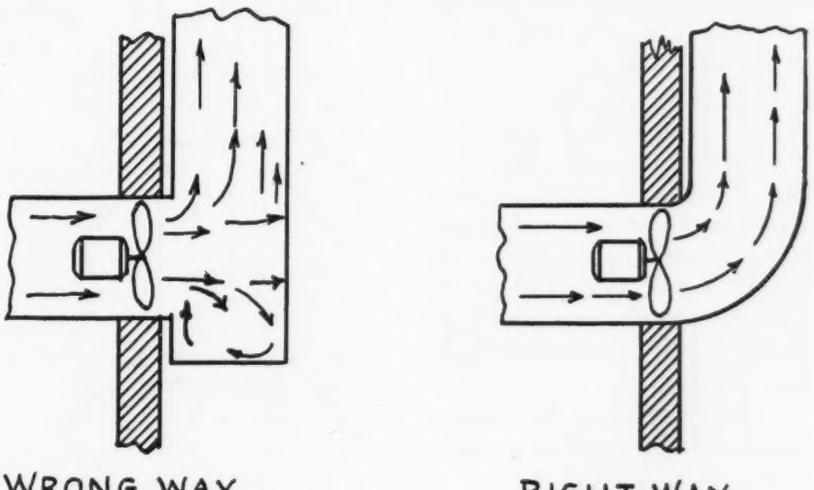


FIG. 1

Blind ends in ducts coupled with right angled bends make pockets which catch materials passing through the system. Such bends also set up short circuit eddies which reduce air flow surprisingly. At the left is such a pocket and at the right the way such a bend should be made

as shown at the left in Fig. 3, but this is poor practice and in the end will decrease the contractor's profits by lowering the effectiveness of the system and thereby injuring his reputation.

When branches enter mains opposite each other, as seen at the left in Fig. 3, there is interference between the opposing branches. Were this interference to be typical of a system having a dozen or more branches the effectiveness of the suction will be vastly decreased and power costs will be high. It is much better to stagger the branches as shown at the right in Fig. 3.

Moreover, one observes that no attempt has been made at gradation of the main size in Fig. 3, left, although in Fig. 3, right, the main has been enlarged in the direction of the inlet of the suction fan. This plan is advisable because as each branch enters the main the volume of air handled by the fan is increased. When branches do not enter mains opposite one another, as at Fig. 3, right, interference to air flow is slight.

In Fig. 4 there is presented a typical four-story residence wherein several varieties of ventilating errors have been made (left view). In a way it reminds one of the newspaper comic that reads "What's wrong with this picture?" —a prize being offered for the reader who detects the most errors. These newspaper puzzles do well enough for parlor amusement, yet in the sheet metal contractor's case all the fun is removed from the situation.

The American citizen has reached the stage of modernization, as true of building remodeling as of new construction. Contractors must take advantage of the opportunities offered or his business will decrease in exact proportion to the diminishing new building rate. During the past year the marriage rate has exceeded the new construction rate. There have been other increases in population, yet new construction has not kept pace with such normal increases.

This means that old buildings are becoming older still, good systems of sheet metal work, as applying to mechanical ventilation, are being constantly injured by overloading and in other ways. Mr. Buildingowner, instead of having new ducts installed, has been adding to the load of those already in use. And each new connection decreases the effectiveness of the system in most cases, although it previously might have operated perfectly.

In the condition noted at the left in Fig. 4 one finds that in addition to a first floor range the fan system must carry off the gas fumes from the water heater in the second floor, the smoke from the range on the third floor and the toilet bowl has been vented into the same riser on the top floor. These things violate every prerequisite of a good installation. A back draft down the duct would spell confusion.

First, attention is called to the canopy over the first floor range, in this case that of a restaurant. At once it is seen that the canopy

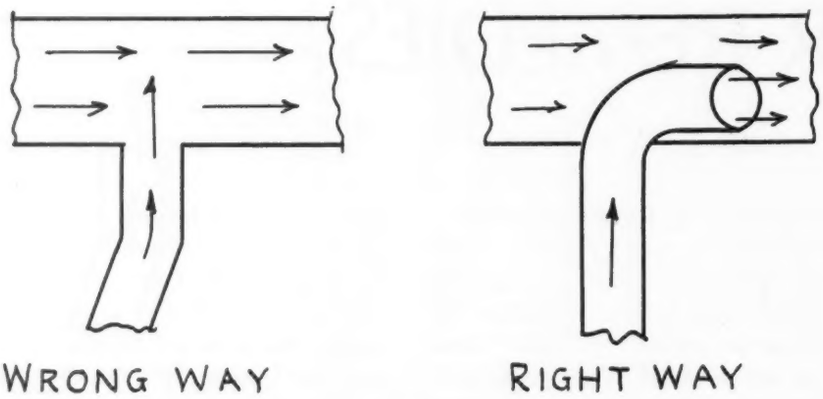


FIG. 2

Two streams of air meeting act just like streams of water. Unless some means is taken to favor the smaller stream its flow is greatly restricted. At the left the right angled joint will practically kill air flow from the small pipe. At the right is a method which accelerates flow in the small pipe through "injector" action

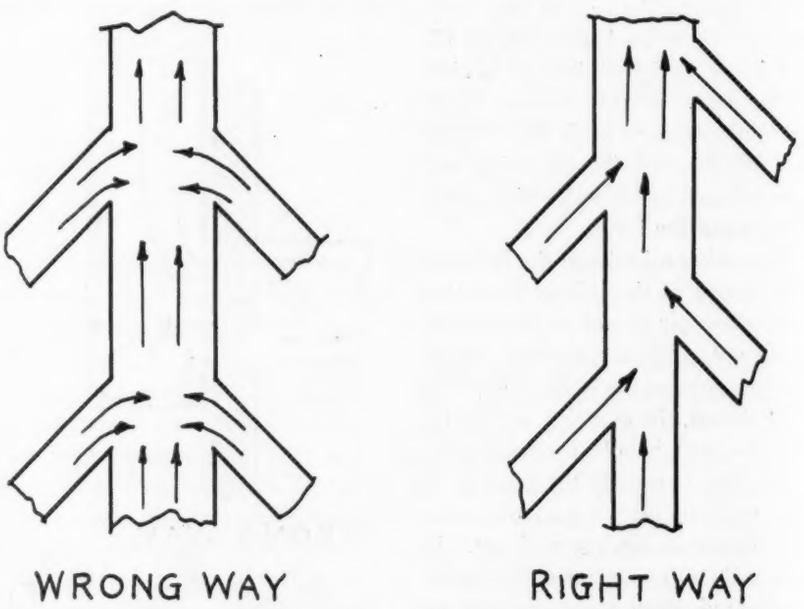


FIG. 3

While it may be easier to form trunks like the one at the left air flow through such a system is highly uncertain. A far more adequate system is the one at the right where entering air streams do not counteract one another

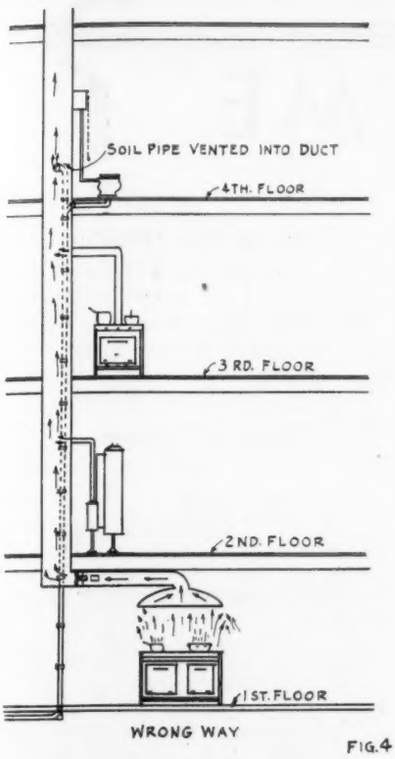


FIG. 4

This might be labeled "how not to design a ventilation stack." The hood is too high above the range, both water heater and third floor range exhaust into the common stack and worst of all the vent pipe also exhausts into this line. A back draft would play havoc with all floors

Ventilation is rapidly assuming a role of importance in building construction and remodeling. This article details some of the common faults in ventilation systems, faults which usually mean the system fails to work satisfactorily. Your comments on this article are invited.

—The Editor.

is far too high above the range to be effective for carrying off cooking odors.

Other air currents, from open windows and doors, interfere with cooking exhaust through the canopy opening. Instead of carrying off all the smells and range heat, the fan will likely exhaust one-tenth of them, securing the other nine-tenths of its load from the area in the immediate vicinity of the hood.

Mistake number two is the use of a propeller, rather than a cased fan, for it must be remembered that the greater the opposition to air flow encountered by the propeller and disc patterns of fans the less will be the volume of air handled. The pressure loss due to friction under the conditions shown will approach ¾ inches water gauge, hence the fan handles in practice only about two-thirds of its rated capacity.

Fatty particles found in odorous cooking stove radiant heat will collect on the motor and, in case of sparking, short circuiting of the wiring or the motor may set fire to the grease. A centrifugal fan, as shown in Fig. 4, is far better because this pattern is designed to overcome duct loss due to friction.

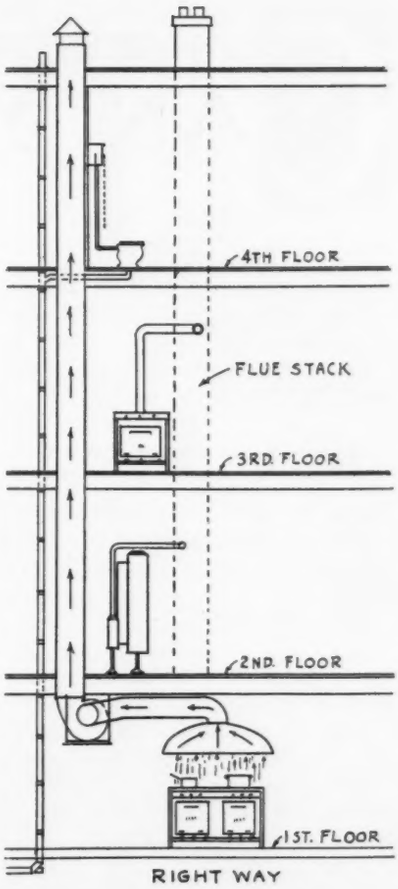
The blades of the wheel would best be flat, instead of cupped. Many contractors favor planing mill fans for this application because of their flat blades. They pass most of the fatty substances onward instead of collecting them on the wheel blades.

Note also in Fig. 4, right, that the range canopy is placed only about 3 feet above the top of the range. The nearer the range the better. It should be only high enough to prevent interference in using the range.

Referring again to Fig. 4, left, one observes that the gas heater fume pipe is connected to the ventilating duct. This is a bad plan because one air stream interferes with the other, the stronger current overbalancing the weaker one.

Again, on the third floor a cooking range is connected to the ventilating flue to add to the confusion and interfere with successful exhaust by the fan. On the top floor occurs yet another bad error, it being noted that the plumber has connected the vent of the waste line into the ventilating duct.

Under conditions of back draft some of the foul sewer odors will be blown into the house, which is detrimental to good health and a



Here is how it should be done—the range mechanically exhausted, both water heater and range in separate flues and the toilet vent in a line of its own

dangerous condition. No inspector in cities where there is a plumbing code would pass such a job, for such codes usually specify that toilet vents be carried out of doors above the roof line entirely separate from other reliefs.

It may appear to readers that the installation shown as Fig. 4, left, is one that never occurs in practice, yet such abortions frequently are found. Running separate flues for the gas heater, the third floor kitchen range and the top floor toilet vent, changing from a propeller to a cased type of fan and lowering the hood are the natural remedies suggested.

Sheet metal contractors during the current year and next few years will be summoned to correct just such erroneous installations as those shown. If no such summons are received such business opportunities can be uncovered by direct solicitation by the contractor or his agents.

CAN YOU TELL ME ?

Bonnet Fan

From A. R. Harris, Chicago, Illinois.

Who makes a fan that goes in the bonnet of the furnace?

Ans.—The A. H. Robinson Company, Masillon, Ohio.

Sheet Metal Hotel Kitchen Equipment

From F. B. Phillips, Albuquerque,

Who makes sheet metal hotel kitchen, restaurant kitchen, and bakery equipment?

Ans—List mailed.

Johnson Service Co.

From C. L. Epps, Van Wert, Ohio.

Where is the Johnson Electric Service Company located?

Ans.—The name is now Johnson Service Company, 1355 West Washington Street, Chicago, Illinois.

"Taco" Water Heaters

From Mr. Chapman, Chicago, Illinois.

Who makes "Taco" water heaters?

Ans.—Taco Heaters, Inc., 342 Madison Avenue, New York City.

Cast Iron Smoke Pipe

From H. E. Griffin, Bedford, Indiana.

What firms make cast iron smoke pipe?

Ans.—Faultless Castings Company, Greencastle, Indiana; Waterloo Register Company, Waterloo, Iowa; Paul L. Sternaman, 441 Williams Street, Springfield, Illinois.

"Swartwout" Ventilator

From Koubek's Hardware Store, Berwyn, Illinois.

Who manufactures the "Swartwout" ventilator?

Ans.—The Swartwout Company, 18511 Euclid Avenue, Cleveland, Ohio.

Gas Machine

From Kruse Hardware Company, Aurora, Illinois.

Who makes a gas machine that is used to cook using gasoline, with gasoline container below ground outside, and air pumps in basement that drives air through tank and back to stove?

Ans.—Delco Light Company, 835 West Washington Street; Matthews Gas Machine Company, 192 North Clark Street; both of Chicago, Illinois.

Sheet Metal Schools

From Jos. H. Pearson, Ottawa, Illinois.

Please give me the names of a few schools, suitable for a high school graduate, teaching sheet metal pattern drafting, ventilation, etc.

Ans.—Carnegie Institute of Technology, Pittsburgh, Pennsylvania; St. Louis Technical Institute, 4543 Clayton Avenue, St. Louis, Missouri.

Steel Silos

From C. A. Shewall, Storm Lake, Iowa.

Who makes steel silos?

Ans.—Columbian Steel Tank Company and Butler Manufacturing Company, both of Kansas City, Missouri.

"Gohi" Sheets

From Chas. Feldt Company, Chicago, Illinois.

Who are Chicago distributors for "Gohi" sheets?

Ans.—Republic Metalware Company, 1800 South Kilbourn Avenue.

Steel Furnaces

From The J. D. Gerken Company, Toledo, Ohio.

Who manufactures steel furnaces?

Ans.—List mailed.

Spiral Lock Seam Pipe

From Otto J. Marx, Blue Island, Illinois.

Who manufactures 8-inch spiral lock seam pipe?

Ans.—Naylor Pipe Company, 1230 East 92nd Street, Chicago, Illinois.

Allegheny Metal

From J. Rosen, Colchester, Connecticut.

Who manufactures Allegheny metal?

Ans.—Allegheny Steel Corporation, Pittsburgh, Pennsylvania; Chicago office: 122 South Michigan Avenue.

Register Shields

From Dayton Hessler Company, Syracuse, New York.

Who manufactures warm air register shields?

Ans.—Beh & Company, 1140 Broadway, New York City; W. F. Gammeter Company, Cadiz, Ohio; Hall-Neal Furnace Company, 1322 North Capitol Avenue, Indianapolis, Indiana.

Second Hand Tools

From H. S. Haslett, Columbus, Ohio.

Where can I get second hand tools?

Ans.—Interstate Machinery Company, 130 South Clinton Street, Chicago, Illinois.

Monitor Furnace

From Wm. S. McMullen, Memphis, Tennessee.

Where can I get parts for the Monitor furnace?

Ans.—Monitor-Caloric Division, Marshall Furnace Company, Marshall, Michigan.

Monel Metal

From J. Rosen, Colchester, Connecticut.

Who manufactures Monel Metal?

Ans.—International Nickel Company, Inc., 67 Wall Street, New York City. Chicago Distributor: Steel Sales Corporation, 129 South Jefferson Street.

Standard Heater

From Dowagiac Steel Furnace Company, Dowagiac, Michigan.

Who manufactures the Standard Heater No. 2543?

Ans.—Standard Heating Company, 750 East 44th Street, Chicago, Illinois.

Repairs for Welcome Furnace

From R. J. Henshaw, Elmira, New York.

Where can I get repairs for the Welcome Furnace?

Ans.—Northwestern Stove Repair Company, 662 West Roosevelt Road, Chicago, Illinois; Peerless Foundry Company, 1845-1935 Ludlow Avenue, Indianapolis, Indiana.

Gas Conversion Burners

From R. J. Henshaw, Elmira, New York.

Who makes gas conversion burners?

Ans.—List mailed.

Steel Cupboards

From G. T. Magee, Greenville, Pennsylvania.

Who makes built-in steel cupboards, using a built-in sink?

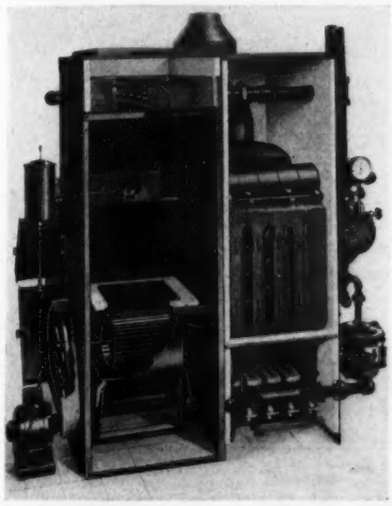
Ans.—Acme Metal Products Company, 4217 Belle Plaine Avenue, Chicago, Illinois.

NEW ITEMS and NEWS ITEMS
From and about the Manufacturers and Jobbers

Bryant Heater Co., Introduces Dualator

The Bryant Heater & Mfg. Company, Cleveland, has just announced a new addition to their line of gas furnaces.

The new unit, known as the Bryant Dualator, is a complete air conditioning unit for residential work. It incorporates forced circulation, air filter-



ing, heating, cooling and humidifying.

Combined within a single cover is a gas boiler which delivers steam to a fin type radiator in the conditioning chamber. Here air is drawn through filters by means of a large, low speed blower, passed over an automatic humidifier and up through the radiator where it is warmed, thence into the distributing ducts to the rooms.

Included in the Dualator is a new type humidifier, an exclusive development of Bryant engineers, which is controlled by a humidity regulator located in an upstairs room. An automatic air damper in the cold air return allows the delivery of just sufficient air to offset the heat loss of the rooms.

Milcor Appoints G. R. Norman Export Manager

The Milcor Steel Company, manufacturers of Sheet Metal Building Products and Fireproof Metal Building Materials, announces the appointment of G. R. Norman as export manager, with offices located at 418 Pershing Square Building, 100 E. 42d Street, New York City.

Mr. Norman has served in the capacity of assistant export manager of the General Fireproofing Company, export manager for six years of the Genfire Steel Company, and recently was manager of the dealer-commodity division for export of the Truscon Steel Company.

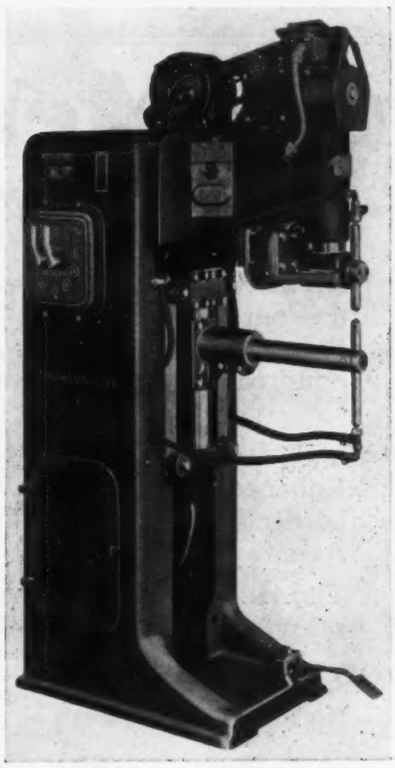
A New Press Welder to Sell for Less Than $1000

The Thomson-Gibb Electric Welding Company of Bay City, Michigan, and Lynn, Massachusetts, manufacturers of resistance welders since 1886, announce their most recent achievement—a press welder to sell for less than $1,000.

This New No. 1 Press Welder is a medium duty automatic spot and projection welder, with smooth straight spindle press type action.

The machine is said to weld with practically no discoloration or depressions, have unusually smooth action, with no hammering of welding points and speedy operation.

The complete driving mechanism is

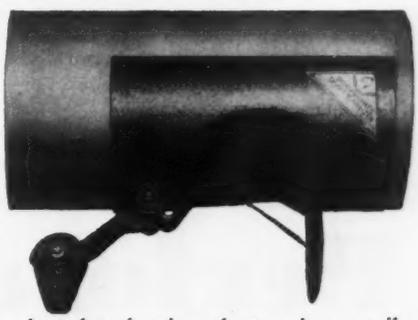


mounted on top of the machine. This reduces the floor space required by approximately 30 per cent compared with former designs of this type of equipment.

The machine as standardly built is a single speed machine. Speeds of either 30, 40, 50, 60, 80, 100, 130, 145, or 160 spots per minute are available. If especially ordered at a slight extra price, a four speed motor and drum controller will be furnished, making the machine a four-speed machine. Several different four-speed combinations are available.

Silent Automatic Corp. Markets Draft Stabilizer

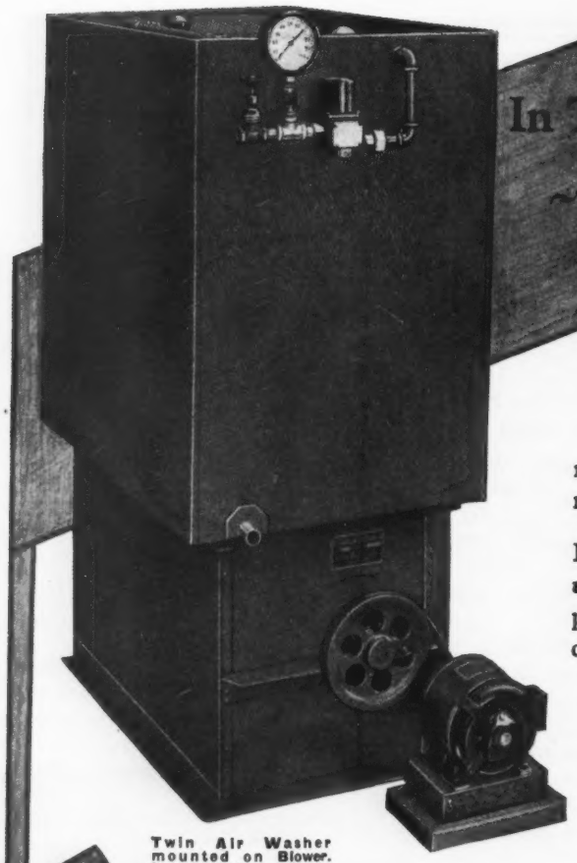
Silent Automatic Corporation, 12001 East Jefferson Avenue, Detroit, has perfected and is now marketing a new draft stabilizer which is claimed to prevent heat waste and regulate the chimney draft. The stabilizer is especially



adapted to heating plants using an oil burner.

The company says:

"Maximum efficiency in the operation of any heater requires the maintenance of just sufficient draft to carry off the products of combustion. Most natural draft chimneys are designed to produce much more draft than is actually needed after the fire is well started, in order to provide sufficient draft when starting the fire and the chimney is cold. Too much draft not only increases fuel consumption . . . it actually wastes fuel. . . . Checking the draft by means of the ordinary butterfly or check damper is not sufficient. It is necessary to stabilize the draft. The DRAFT STABILIZER is easily installed in a few minutes to give individual adjustment for each particular job. The DRAFT STABILIZER is so adjusted that maximum draft is available at starting. As the chimney "warms up" the STABILIZER begins to function, reducing the draft to just the amount necessary, adjusting itself to maintain the desired intensity by the damper and balance wing swinging into the smoke pipe.



Twin Air Washer mounted on Blower. No additional floor space used. Returns enter at top.

CO-PARTNERS
In This Business of Air Conditioning

Brundage ~ TWIN ~ BLOWER ◆ ◆ Brundage ~ TWIN ~ AIR WASHER

HERE are two units which build up a 100% Air Conditioning system.

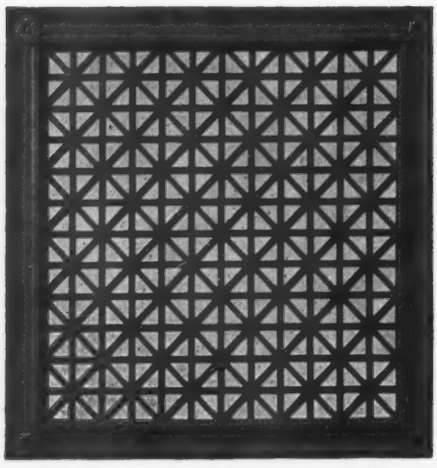
The Brundage Twin Blower has built a reputation for its silent, efficient service, its ability to meet the most stringent requirements.

Now the Brundage Twin Air Washer is here. ***It washes, it purifies, it humidifies.*** Scientific yet simple construction to give maximum service. A fitting companion for the Brundage Twin Blower.

Progressive dealers everywhere are finding Brundage "Air Conditioning" units profitable to install. It will pay you to investigate

THE BRUNDAGE CO. KALAMAZOO, MICH.

Perforated Metals...
for every purpose



No matter what the uses we can perforate metal to meet the purpose. In Public Buildings, Churches, Schools, Factories and homes our grilles are dominant. There are hundreds of designs to select from.

"GRILFRAME"

Enhances the beauty of any grille by the addition of a border frame of steel. You can do it with "Grilframe." Agents everywhere.

The H. & K. Line consists of perforated sheets and a full selection of Guard accessories.

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New York Office, 114 Liberty Street

The Sternaman
CAST IRON SMOKE PIPE

Better Customer Satisfaction With a SINGLE Purchase Cost! Yet a Good Margin of Profit—

Whether you are to install a new furnace or just making a replacement, look to *Sternaman Cast Iron Smoke Pipe* (the practical Cast Iron Pipe) for 100% customer satisfaction and higher efficiency.

Margin equivalent to practically 8 to 10 years replacement of ordinary pipe yet the cost to consumer is very low considering the long life and quality of *Sternaman Pipe.*

Easily Installed–

Built up on the job of individual Units, to meet requirements of all installations. Here is a good leader to use to close the sale of a heating plant.

To build up confidence and properly serve your customers you should insist on *Sternaman Cast Iron Smoke Pipe.*

Write now for further information

STERNAMAN– 441 Williams Street, Springfield ✦ Illinois
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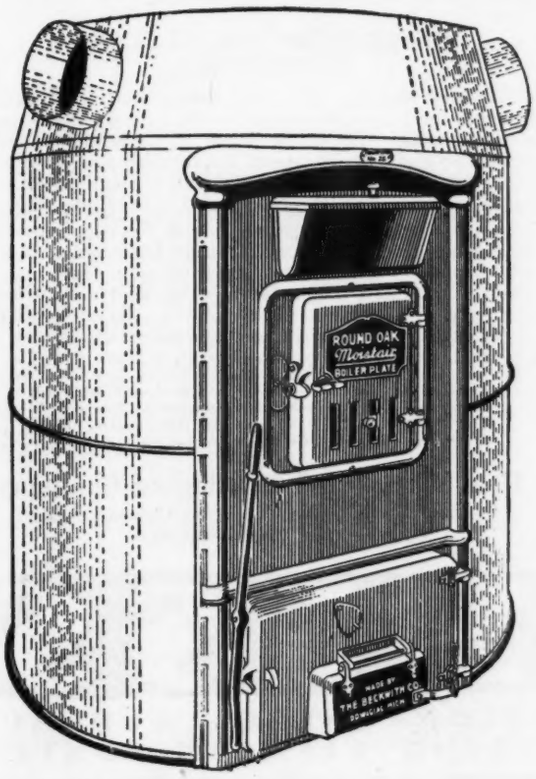

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Coal-Fired
Gas-Fired **FURNACES**
Will Help YOU
develop a better furnace business...at a good profit

There is a Round Oak coal or gas fired furnace to meet every warm-air heating problem. Our position is better than ever to well serve dealers. Write for complete information.

ROUND OAK FURNACE CO., Dowagiac, Mich.

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Double Your Sales

IT'S no longer necessary to be tied down to any one class of installation.

"AFCO" furnaces more than double your potential customers as there is an "AFCO" furnace or complete unit for every class of domestic and business building. A complete line of furnaces—of highest quality—with the latest features—***priced right.***

AFCO
TRADE NAMES REGISTERED
THERMO

Double your sales and you should more than double your profits. "AFCO" Dealers have proved it—that's the reason for the constantly increasing list of Dealers who offer the complete "AFCO" heating service.

Here is one decision you can make right now and it will not cost you more than 2c at the most. Ask for full "AFCO" information—it will be sent immediately and without obligation. Pin this advertisement to your letterhead and mail—that's all.

American Furnace Co.

2719-31 Morgan Street, St. Louis, Mo.

Manufacturers of

"AFCO" Boiler Plate Furnaces (Three Types)
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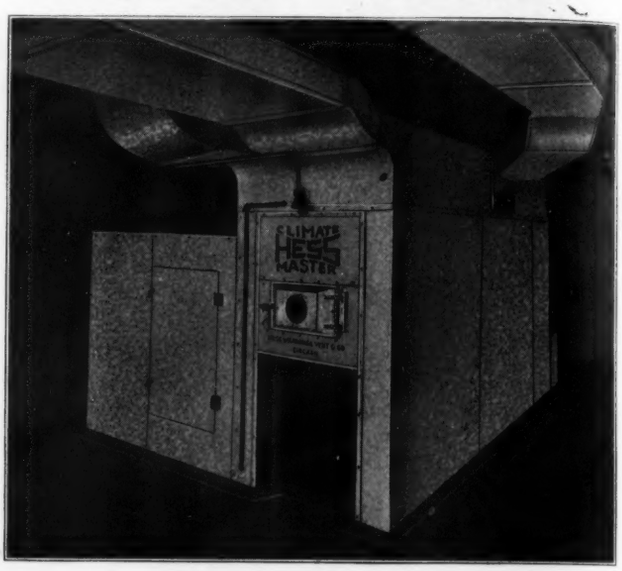
"THERMO" Cast Iron Furnaces (Two Types)
"THERMO" Gas Furnaces (Four Types)

THE "SYSTEM OF THE FUTURE" IS HERE



Basement Installation Hess Indoor Climate Control System

Air conditioning is spoken of as the one industry that will make remarkable strides during the coming years. Movies and other public buildings have enjoyed the benefits of year-round comfort—now trains have air conditioning—offices, stores and homes are next in line.

How will this great change affect your business?

Aggressive dealers and heating contractors everywhere are investigating the "system of the future," which is rapidly supplanting the ordinary heating system to provide both summer and winter comfort.

HESS OFFERS YOU 55 YEARS' EXPERIENCE

Many alert furnace and sheet metal men are turning to Hess for help and greater profits and we invite you to do the same. Let us send you photographs showing representative installations of the modern air conditioning jobs we have designed, and full particulars of our engineering service, the result of 55 years' experience.

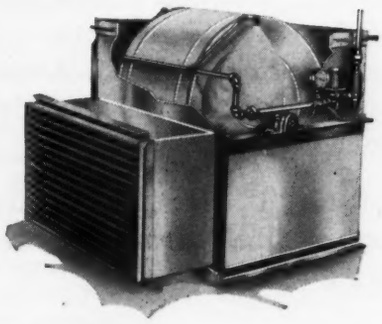
The Hess Indoor Climate Control System provides humidified, filtered or washed air in large volumes for year round comfort. The Hess Climate Master, all-steel construction with welded seams that do not leak dirt, gas, or soot, is available in sizes up to 1,000,000 B. T. U. capacity to cover a wide range of jobs. Burns any fuel, coal, oil or gas, with high efficiency.

Someone in your city—sooner or later—will make big money selling air conditioning equipment. You can be that "SOMEONE" if you are the Hess dealer. Write today for our exclusive dealer proposition.

Hess Warming & Ventilating Company
1201-1211 S. Western Ave., Chicago, Ill.
Branches: **Detroit—Milwaukee**

HESS
WELDED STEEL FURNACES
INDOOR CLIMATE CONTROL
SYSTEM

Washer-Blower for Homes Now in a Single Unit



—and at a *One-Unit* Price

No competition for dealers handling this new Am-Pe-Co Air Washer-Blower Combination. Homeowners get *both* washed and humidified air at *one-unit* cost. You get greater profits and extra sales.

Undersells all types of ordinary double installations. Its compactness saves space and makes for a better job. Also operates as a summer cooling plant if desired.

Latest scientific design, exclusive features, *guaranteed ratings* and finest workmanship throughout. Let us send you all the facts. Write at once for new illustrated circular and dealer prices. Be the first in your locality to cash in on Am-Pe-Co Air Washer-Blower.

Also Am-Pe-Co Blowers for forced air systems only

American Machine Products Co.
Box B, Marshalltown, Iowa

THE SAME OLD STORY

Progress continues to lead the way

"AIR CONDITIONING"

is today's contribution. Our industry is progressing.

A live manufacturer must accept and assist PROGRESS.

That is one reason why The MAY-FIEBEGER Co. has for the past months repeatedly called especial attention to its single unit which gives complete "AIR CONDITIONING."

The AKRON AIR BLAST

If you desire to follow the trend of PROGRESS you will accept our offer to supply full information pertaining to the AKRON AIR BLAST, the unit which gives 100% "AIR CONDITIONING."

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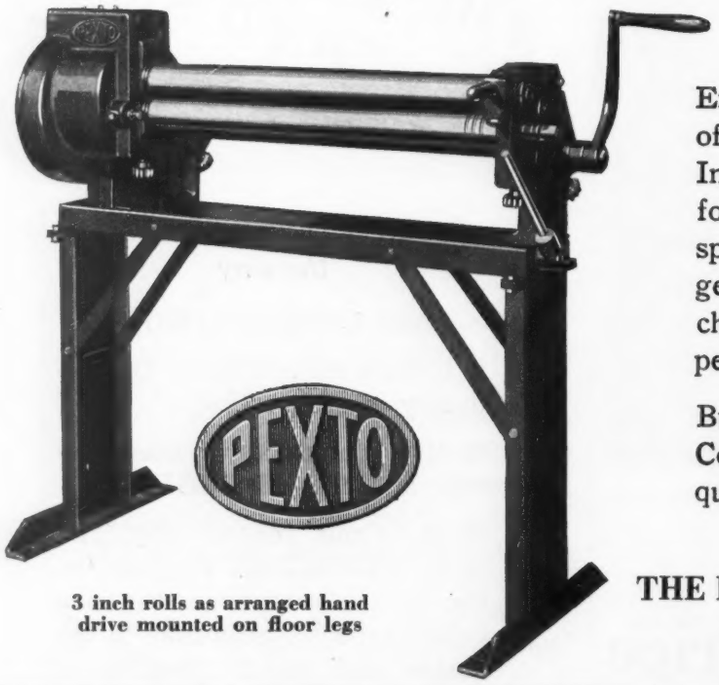
Say you saw it in AMERICAN ARTISAN—Thank you!

IMPROVED . . .
Lighting Slip Roll Forming Machine



3 inch rolls as arranged hand drive mounted on floor legs

Engineers recognize the value of an installation of PEXTO Improved Lightning Slip Roll forming machine. Built for speed—easy to operate—all gears are fully enclosed. A machine that will give good dependable service.

Bulletin "I" gives full details. Copy will be forwarded on request.

THE PECK, STOW & WILCOX CO.
Southington, Conn.

OIL HEAT

Amazing New Features and Low Price

IMAGINE an oil burner that burns oil or gas at a fraction of former costs! The Laco Patented Mineral Wick does it. Now equipped with NEW REMOVABLE WICK CHAMBER, new control valves, a wider range capacity, new wick type air flue orifice, increased heating capacity, and new flame control, at the lowest price in the history of oil burners. No tearing up the furnace or breaking in the fire bowl. Exceptionally fine for cast iron furnaces.

Automatic control. 26 Models. Every burner tested in the factory. You make full dealer profit on every sale. Write today for amazing offer.

Dealers Wanted

Write today for full information how you as a dealer can make from $5,000 to $50,000 a year selling the complete Laco line. The heating season is at hand. Act at once. Write or wire today.

Laco Mineral Wick (with removable chamber) that changes oil into gas, also will burn natural or manufactured gas.

Listed as Standard by Underwriters Laboratories

LACO OIL BURNER CO.

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IT PAYS TO BUY —QUALITY— WHITNEY Lever PUNCHES

WHITNEY HANDY VISE

Here is an item that costs little but proves indispensable once you get used to it. This Vise is handy, practical and securely holds any Whitney Lever Punches. Well made of high-grade Malleable Iron. Bolts to bench or can be bolted to plank. Weighs only 5 lbs.

No. 2

The punch is preferred by thousands for accurate and quick punching.

Depth of throat, 1 11/16 inches. Capacity, 5/16 inches through ¼ inch iron or equivalent. Extra punches and dies sizes, 3/32 to ½ inch by 1/64 inch.

Write for Catalog

W. A. WHITNEY MFG. CO.
636 RACE STREET
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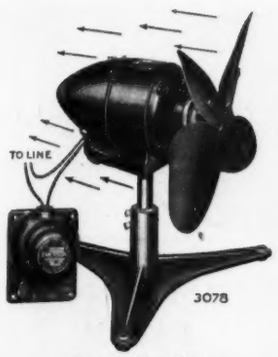
The Choice of OVER 5000 Satisfied Users



Made in Two Sizes
12-in. $35.00 List, Codeword Tabay
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Above prices and codewords cover 110 volt, 60 cycle fans and include 3-speed regulators.

Here is an accessory that is easy to sell—easy to install and gives genuine heating satisfaction. It is a real profit builder for the dealer!

EMERSON Furnace Fans

Offer a Practical and Economical Method of Increasing the Air Circulation of Gravity Warm-Air Heating Systems

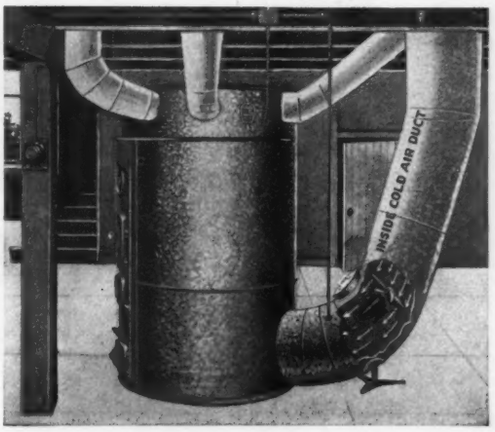
THE Emerson furnace fan blade was developed particularly for forcing air through furnace ducts and it delivers a large volume of air to the registers. The slow-speed motor is exceptionally quiet in operation and will not interfere with radio reception.

A three-speed regulator is regularly furnished, making it easy to control the volume of air circulated. The adjustable motor mounting is made for three different positions; horizontal and angles of 22½° or 45° making it suitable for duct (as shown on right), or boot installation.

Sell and install Emerson Furnace Fans for bigger profits and satisfied customers—order a sample for demonstration purposes at once. Write your nearest distributor or direct to

THE EMERSON ELECTRIC MFG. CO.

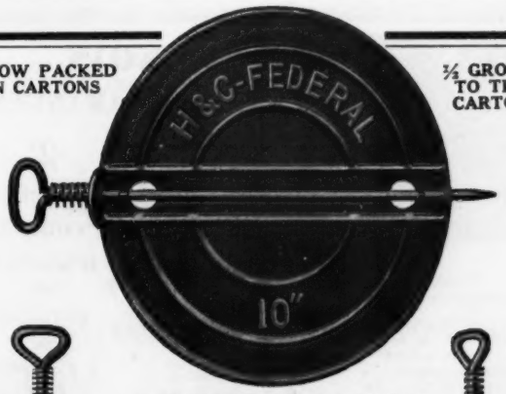
2018 Washington Ave. St. Louis, Mo. | 806 W. Washington Boul., Chicago, Ill. | 155 Sixth Ave. New York City



Showing Emerson Furnace Fan installed in cold air duct of warm-air furnace.

NOW PACKED IN CARTONS

½ GROSS TO THE CARTON



THE BEST BUY IN DAMPERS

A HUSKY, exceptionally well made product at a price that exacts no premium for extra quality. Handle enters either side of disc. Furnished in 6", 7", 8", 8½", 9", 10", 12" and 14" sizes.

Samples and prices on request

No. 101 Clip

No. 102 Clip

STURDY—ECONOMICAL
No-Rivet Clips and Tips

Made of heavy gauge steel. Prongs provide quick and secure means of fastening to disc without rivets. Also punched with rivet holes.

It pays to standardize on the H & C line of Quality Furnace Accessories

HART & COOLEY MFG. COMPANY
Successors to Federal Mfg. Company

SALES OFFICES:
Chicago, 61 W. Kinzie St.; Philadelphia, 1600 Arch St.; New York, 101 Park Ave.; Boston, 75 Portland St.; New Britain; Nashua, N. H.
FACTORY AT HOLLAND, MICH.

They'll Junk Their Old Furnaces When You Tell Them About

X-L-ALL RUGGED STEEL

Warm Air Furnaces!

Pat. Applied For

For Economy—Oversize casings, lined with corrugated black iron; a big straight firepot and extra large heat trap, entirely within the casing has the effect of a second furnace, reemploying heat otherwise wasted up the chimney and saving much fuel. The oversize combustion chamber gains the same efficiency with a 20" grate that others do with a 24" size, allowing ample room for expanding gases, thus assuring complete fuel consumption, provides a reserve of heat for quick demand, and prevents "hot spots," burning out or buckling.

For Health and Comfort—Large, convenient humidifier permits more health and comfort at 65° than dry air at 75° F., saving much fuel.

For Cleanliness—Tight fitting doors, double-sealed joints and humidifier assure cleanliness.

Unusual Features—The 8 Gauge Armco mild steel sheets are **double-welded** with no rivets to work loose. Extra large feed door. Roomy ash pit of one piece welded steel. Extra heavy improved lifetime grates. Low height. 2" firebrick lining, instead of usual one-inch, made to withstand 3000°, is less susceptible to cracking and fusing. Adaptable to gas or oil burners.

FREE!

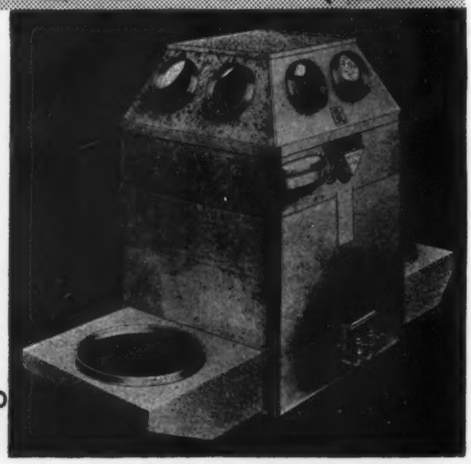
Send today for unusual dealer proposition and illustrated book showing correct steel furnace construction, installation and operation, and proof of the superiority of this type of furnace. Do not delay. **Mail the coupon now!**

The Deshler Foundry & Machine Works
140-142 S. East Ave., Deshler, Ohio

Please send me without obligation
.....The X-L-ALL Furnace Book
.....The X-L-ALL Dealer Proposition.

Name.....
Street.....
City..... A.A.

PAYNE



GAS-FIRED
VENTED

CENTRAL HEATING SYSTEM

Now you can compete in installation cost with the average old fashioned liquid or solid fuel plant.

More than that, Payne Central Furnaces set a new standard of performance! They provide a degree of heating luxury never before achieved!

You can make more profits this year by concentrating your efforts on one line... Payne!

You enjoy full cooperation from the largest installing organization of its kind in the world.

This is going to be a "big year" in gas heating. Why waste time representing "second bests". Tie up with the leader. Write *now* for proposition.

Payne

PAYNE FURNACE & SUPPLY CO., INC.
Beverly Hills, California

Warehouse—Buffalo, N. Y. ● Jobbing Connections in Principal Cities
Dealers Everywhere

There's a Payne Heat System for Every Climate and Building

MANUFACTURED BY STANDARD ASBESTOS MFG. CO. OF CHICAGO 820-822 W. LAKE ST. BUY "ASBESTOS PAPER" MADE IN CHICAGO

Standard Asbestos Mfg. Co. (Illinois)
2333 Pine St.
St. Louis

Standard Asbestos Mfg. Co. (Ohio)
5808 Euclid Ave.
Cleveland O.

ASBESTOS PAPER

8-10-12-14-16-32 lbs. per 100 square feet. 18" and 36" wide— 50 or 100 lb. Rolls.

ASBESTOS PAPER

That increases your profits

STANOCEL

CORRUGATED

Quality soon proves itself. Stanocel Corrugated Asbestos Paper stands the test. It wears better and lasts longer. For better asbestos paper use Stanocel.

CORRUGATED
ASBESTOS BOARD

A flexible insulation ⅛, 1/6 or ¼ inch thick. Especially adapted for wrapping furnace pipes.

Write for Details

Vernois Enameled Circulators

Vernois circulators for coal, gas or wood. Ready sellers

Vernois ranges, a complete line, decidedly different

Vernois Gas Range

VERNOIS
HEATERS and RANGES

2 Important Products

Distinctive
▼
Different
▲
A Complete Line

MT. VERNON FURNACE & MANUFACTURING CO.
MT. VERNON, ILL.

The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

A fuel saver and generating machine of the finest quality made at the price.

GEO. W. DIENER MFG. CO.
404 North Monticello Ave. Chicago

Mention AMERICAN ARTISAN in your reply—Thank you!

Furblo

—with the new

V-M FILTER CABINET

Performance Data is GUARANTEED

The new Furblo with V-M Filter Cabinet offers an unusually compact and efficient air conditioner. Furblo sends the warm air *up* from the basement. The V-M Filter, in the easily accessible drawer, cleans and purifies the air as it comes through the cold air return. The drawer arrangement permits replacement of the fillers in an instant. Send for further data on Furblo—V-M Filter—and the Filter Cabinet.

LAKESIDE COMPANY, Hermansville, Mich.

Makers of Lakeside Ventilating Systems

"American Seal"

FURNACE CEMENT

Roof Cement—Stove Putty
Plumbers Putty

PAINTS AND SPECIALTIES

WILLIAM CONNORS PAINT MFG. CO.

Established 1852

TROY NEW YORK

JAMES L. PERKINS, Western Distributor
140 South Dearborn Street, Chicago, Illinois

Let Us Tell You
WHY

The HALL-NEAL

VICTOR

Has HEAT FINS

HALL-NEAL FURNACE COMPANY
1324 Capitol Avenue Indianapolis, Ind.

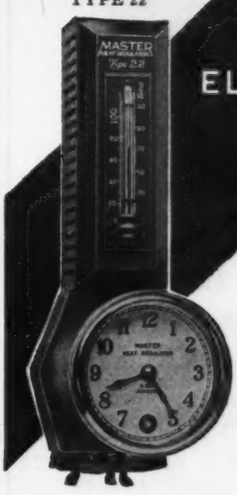
Adds Today's Big Appeal— CONVENIENCE

WHEN you sell MASTER Heat Regulators you sell what people WANT—the convenience of automatic heat control, as well as the greater comfort and economy of even temperature.

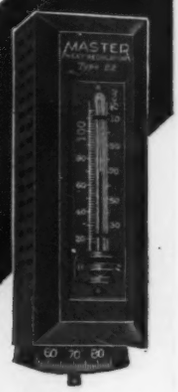
MASTER HEAT REGULATOR

TYPE 22

FULL ELECTRIC



Type 22. Full Electric, 8-Day Jewelled Clock Control $80.



Type 22. Full Electric, without clock, $55.

This automatic janitor is full electric, needs no daily attention, has nothing to forget. Operates instantly when heat changes one degree, or less if desired. Simple, rugged construction of flawless materials—gives years of accurate, dependable service. Designed and built by the manufacturers of Master Gradual Operation Heat Regulators.

Popular Prices. Eight day jewelled clock control model, full electric, $80. Same, also full electric, but without clock control, $55.

Install the equipment that will add to your profits and to your good name. Write us today for complete information and discounts to dealers.

WHITE MFG. CO.

2362 University Ave. St. Paul, Minn.

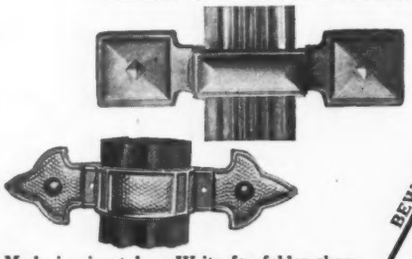
Say you saw it in AMERICAN ARTISAN—Thank you!

RIVAL STRAP CORP. 308 WEST 20th ST. NEW YORK, N. Y.

THE RIVAL AND FITRITE

One-Piece Ornamental Leader Straps

Patented July 10th, 1928; Jan. 6th, 1931



Made in six styles. Write for folder showing complete line and sizes.

STRAPS SOLD THRU JOBBERS ONLY

BEWARE OF IMITATIONS

"FITRITE"
Mop Heads & Staples
Malleable Iron

Write Dept. "A" for full details and prices

"FITRITE" SKYLIGHT GEARING

Iron or Bronze ⅜"-½" and 1" sizes
Made also for chain operation

"Fitrite" Adjustable PIPE SNOW GUARDS
Galvanized Iron or Bronze

Type "X"

"FITRITE" *Bronze* ROOF STRAINERS

3 Types. For Roofs having inside cast iron leader. Type "X" (illustrated) also made in Mal. Iron

"FITRITE" *Bronze* BEEHIVE STRAINERS
For Round Leaders
3"-4"-5"-6"-7"-8" Diameter

DAVID LEVOW 308 WEST 20TH ST. NEW YORK

POSITIVE VENTILATION

FOR FOUNDRIES, GARAGES, ETC. . .

Burt Fan Ventilators have proven their effectiveness by the efficient results which they produce on foundries, garages and other difficult ventilating jobs. They are economical to operate and thousands are giving their owners years of uninterrupted service.

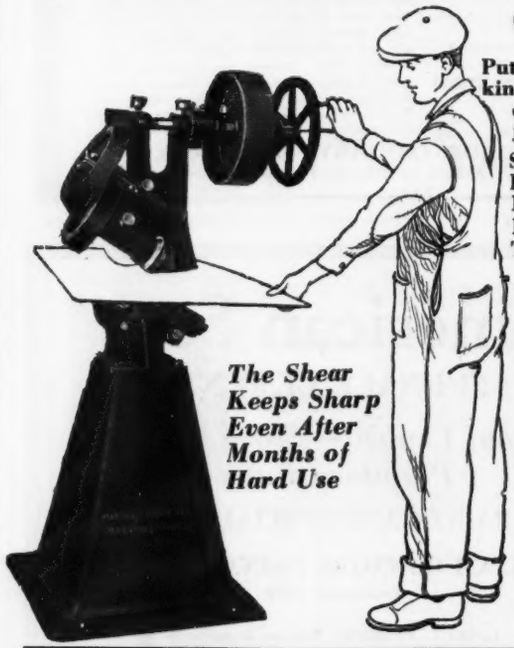
The BURT MFG. Co.

Ventilators-Oil Filters-Exhaust Heads

930 S. HIGH ST. AKRON, OHIO

MARSHALLTOWN THE MARSHALLTOWN LINE **SHEARS**

LET MARSHALLTOWN SHEARS CUT YOUR LABOR COSTS



Put the right kind of machine on the right job.

Save time and labor costs. Make it a MARSHALLTOWN.

The Shear Keeps Sharp Even After Months of Hard Use

Let the Catalog Tell the Story—Write for It Now

There is a MARSHALLTOWN for every use. Hand — Motor — and Belt Power.

MARSHALLTOWN MFG. CO. MARSHALLTOWN IOWA

Yoder L-300 Stove Pipe Seaming Machine

THIS machine is built with a combination set of 3 pairs of dies, and completely forms the edges of Stove Pipe Sheets, ready for seaming. The bed is of ample proportions, cast in one piece, including all bearings. The shafts are large and all parts sufficiently heavy to permit of rapid operation and produce accurate work.

The dies are accessible, permitting of quick and easy adjustment and are of sufficient length to seam 31" sheets, of No. 22 gauge or lighter. Curling rolls can be attached to frame of the machine, permitting seaming and curling pipe with one handling. Net weight—2700 pounds.

THE YODER COMPANY
W. 55 ST. and WALWORTH AVE. CLEVELAND, OHIO
PLATE AND SHEET METAL MACHINERY SPECIALISTS

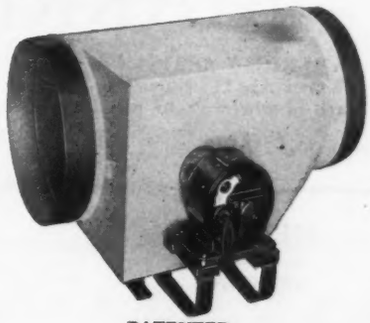
A Heat Hustler Fan Forces Air Through a Single Warm Air Pipe

Heats garages, sun porches and other rooms that will not heat by gravity. Mounts directly in the warm air pipe. Draws heat from the furnace and forces it into the hard-to-heat room. Quick heat for a bathroom.

Four reasons why you should use the American Heat Hustler:

1. It uses a positive pressure, rotary type fan.
2. Motor is outside the warm air flow, adding greatly to life of motor and leaving as much space for gravity air flow as before the Heat Hustler was installed.
3. It is quiet.
4. Furnished for either automatic or manual control.

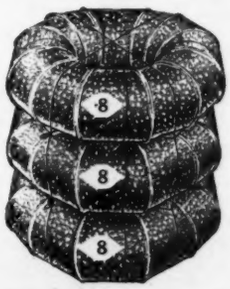
Price list, with descriptive literature showing different models, sizes, etc., will be sent you by return mail upon receipt of your request. CLIP AND SEND THIS AD IN NOW!



PATENTED

AMERICAN FOUNDRY & FURNACE COMPANY

Bloomington, *World's largest manufacturers of blower furnace systems* **Illinois**



The Elbow you will eventually use. Why not now?

FOR GOOD RESULTS USE ADJUSTABLE E-Z ELBOWS AND DAMPERS

Snap and it's off—

Tap and it's on—

Will appeal to you especially for their EASY manipulation. The E-Z patented feature insures trouble-proof installation and positive lock. The all-steel notched spindle snaps into place — no work, no worry. E-Z Dampers save time and temper.

The E-Z Damper is made of durable metal. Its selling feature is the built-in snap lock which is an E-Z patent.

Acme Tin Plate & Roofing Supply Co.

2401-03 N. 10th St. Philadelphia, Pa.

Manufacturers of Elbows, Pipe, Furnace Fittings and Dampers.

Greater Value Always Brings Greater Sales

Now . . . we are building more value into Faultless Furnaces than ever before, and consequently our dealers are securing more business. Obviously, Faultless Furnaces will increase your sales, too!

"True to the Name"

FAULTLESS WARM AIR FURNACES

THE GRAFF FURNACE CO.

SCRANTON, PA.

New York City Sales Office: 116-118 Wooster St.

GILTEDGE —The Furnace With a GOOD Name

The PLEDGE of the RE-ORGANIZED and RE-FINANCED company is being carried out. Never before has the Dealer received such co-operation, such quality and such service on which to build a successful and profitable business.

SCHWAB FURNACE & MFG. CO. **CEDAR GROVE, WIS.**

Milwaukee Office, 522 Cherry Street

Write for our catalog and dealers' Profit-sharing proposition

Mention AMERICAN ARTISAN in your reply—Thank you!

~ MARKET QUOTATIONS ~

AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.

NOTE—These prices are Chicago Warehouse Prices, to which must be added territory differentials

METALS

PIG IRON

Chicago Fdy., No. 2	$17.50
Southern Fdy., No. 2	17.01
Lake Superior Charcoal	27.04
Malleable	17.50

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28 112 sheets	$23.80
IX	20x28	27.45
IXX	20x28 56 sheets	14.95
IXXX	20x28	16.10
IXXXX	20x28	17.35

TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	$22.50
IX 20x28, 40-lb. 112 sheets	25.00
IC 20x28, 25-lb. 112 sheets	19.60
IX 20x28, 25-lb. 112 sheets	22.10
IC 20x28, 20-lb. 112 sheets	18.25
IX 20x28, 20-lb. 112 sheets	20.75

"ARMCO" INGOT IRON PLATES

No. 8 ga.—110 lbs.	$4.15
3/16 in.—100 lbs.	4.05
¼ in.—100 lbs.	3.85

COKE PLATES

Cokes, 80 lbs., base, 20x28	$12.00
Cokes, 90 lbs., base, 20x28	12.20
Cokes, 100 lbs., base, 20x28	13.75
Cokes, 107 lbs., base, IC, 20x28	12.75
Cokes, 135 lbs., base, IX, 20x28	14.75
Cokes, 155 lbs., base 2X, 56 sheets	8.50
Cokes, 175 lbs., base, 3X, 56 sheets	9.35
Cokes, 195 lbs., base, 4X, 56 sheets	10.25

HOT ROLLED ANNEALED SHEETS

Base 10 ga.	per 100 lb.	$3.25
"Armco" 10 ga.	per 100 lbs.	4.15

HOT ROLLED ANNEALED SHEETS 16 GA. AND HEAVIER

No. 18	per 100 lbs.	$3.25
No. 20	per 100 lbs.	3.35
No. 22	per 100 lbs.	3.45
No. 24	per 100 lbs.	3.55
No. 26	per 100 lbs.	3.65
No. 27	per 100 lbs.	3.70
No. 28	per 100 lbs.	3.80

GALVANIZED

No. 16	per 100 lbs.	$3.70
No. 18	per 100 lbs.	3.80
No. 20	per 100 lbs.	3.90
No. 22	per 100 lbs.	4.00
(Standard differentials on extras to apply)		
No. 24	per 100 lbs.	$4.10
No. 26	per 100 lbs.	4.35
No. 27	per 100 lbs.	4.45
No. 28	per 100 lbs.	4.60
"Armco" 24	per 100 lbs.	5.75

BAR SOLDER

Warranted 50-50	per 100 lbs.	$19.25
45-55	per 100 lbs.	17.00
48-52	per 100 lbs.	17.75
Plumbers'	per 100 lbs.	15.50

ZINC

In Slabs	$5.00

SHEET ZINC

Cask Lots (600 lbs.)	$12.00
Sheet Lots (100 lbs.)	13.00

BRASS

Sheets, Chicago base	16 ⅝ c
Tubing, seamless, Chicago base	20 ½ c
Wire, Chicago base	16 ⅛ c
Rods, Chicago base	13 ⅝ c

COPPER

Sheets, Chicago base	18 ⅛ c
Tubing, seamless, Chicago base	20 ⅝ c
Wire, plain rd., 8 B. & S. Ga. and heavier	12 ⅝ c

LEAD

American Pig	$6.00
Bar	7.50

TIN

Bar Tin	per 100 lbs.	$33.00
Pig Tin	per 100 lbs.	32.00

SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	6 ½ per lb.
Mill board, 3/32 to ½	6 ½ c per lb.
Corrugated paper (250 sq. ft. per roll)	$4.25 per roll
Pipe joint tape, per 500 lineal feet	$1.50

ASBESTOS SEGMENTS

8 in.	per 25 sets	$1.50
9 in.	per 25 sets	1.75
10 in.	per 25 sets	2.00
12 in.	per 25 sets	2.50

CEMENT, FURNACE

5-lb. cans, net	$0.40
10-lb. cans, net	0.80
25-lb. cans, net	2.00
Per 100 lbs.	7.50

CLIPS

Damper

No-Rivet Steel, with tail pieces, per gross	$8.25
Rivet Steel, with tail pieces, per gross	7.50
Tail pieces, per gross	2.00

COPPER FOOTING

Copper Footing	43 %

CORNICE BRAKES

Chicago Steel Bending

Nos. 1 to 6B	Net

CUT-OFFS

Gal. plain, round or cor. rd.	
26 gauge	30 %
28 gauge	35 %

DAMPERS

Yankee Warm Air

7 inch, doz.	$1.60
8 inch, doz.	2.20
9 inch, doz.	2.60
10 inch, doz.	2.80
12 inch, doz.	3.50
14 inch, doz.	5.00

EAVES TROUGH

Galv. Crimpedge, crated	75-15 %
Zinc	60 %

ELBOWS

Conductor Pipe

Galv. plain or corrugated, round flat Crimp.

28 gauge	60-10 %
26 gauge	50 %
24 gauge	15 %

Galvanized Terne Steel

Plain Rd. and Rd. Corr.

28 gauge	60-10 %
26 gauge	50 %
24 gauge	15 %

Square Corrugated

28 gauge	55 %
26 gauge	40 %

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.

Not nested	70 & 5 %
Nested solid	70 & 5 %

Sq. Corr., A. & B. & Octagon

28 gauge	55 %
26 gauge	40 %

Portico

1, 1¼, 1½ inch	45 %

Copper

16 oz., all designs	50 %

Zinc

All styles	60 %

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue No. 28 Gauge.

	Doz.
5 inch	$1.15
6 inch	1.25
7 inch	1.75

Adjustable—Uniform Blue

No. 28 Gauge, Uniform Blue.

5 inch	$1.60
6 inch	1.75
7 inch	2.10

WOOD FACES—60 % off list.

FIRE POTS

	Each
No. 02 Gasoline Torch, 1 qt.	$ 5.13
No. 9250, Kerosene or Gasoline Torch, 1 qt.	6.50
No. 10 Tinner's Furnace Square tank, 1 gal.	11.20
No. 15 Tinner's Furnace Round tank, 1 gal.	10.70
No. 21 Gas Soldering Furnace	3.60
No. 110 Automatic Gas Soldering Furnace	10.50

GLASS

Single and Double Strength, A, all brackets	85 %
Single and Double Strength, B, all brackets	87 %

HANGERS

Conductor Pipe

Milcor Perfection Wire	25 %
Milcor Triplex Wire	10 %

Eaves Trough

Steel (galv. after forming), from list	45 %
Selflock E. T. Wire, List	10 %

HOOKS

Conductor

"Direct Drive" Wrought Iron, for wood or brick	15 %

MITRES

Galvanized Steel Mitres

28 gauge	70-15 %
26 gauge	70- 5 %

PASTE

Asbestos Dry Paste

200-lb. barrel	$15.00
100-lb. barrel	7.75
50-lb. pail	4.50
25-lb. pail	2.50
10-lb. bag	1.20
5-lb. bag	.60

PIPE

Galvanized

Crated and nested (all gauges)	75-12 ½ %
Crated and not nested (all gauges)	75-7 ½ %

Furnace Pipe

Double Wall Pipe and Fittings	60 %
Single Wall Pipe, Round Galvanized Pipe	60 %
Galvanized and Tin Fittings	60 %

Lead

Per 100 lbs.	$12.50

Stove Pipe

"Milcor" "Titelock" Uniform Blue Stove

28 gauge, 5 inch U. C. nested	$10.00
28 gauge, 6 inch U. C. nested	11.00
28 gauge, 7 inch U. C. nested	13.00
30 gauge, 5 inch U. C. nested	9.25
30 gauge, 6 inch U. C. nested	10.00
30 gauge, 7 inch U. C. nested	12.00

T-Joint Made Up

6-inch, 28 gauge	per doz.	$3.40

REGISTERS AND FACES

Floor Registers

Steel and Semi-Steel	40 & 10 %
All Cast Iron	20 %

Baseboard

2-Piece	40 & 10 %
1-Piece	40-10 & 20 %

Adjustable Ventilators

Adjustable Ventilators	40 & 10 %

COLD AIR FACES

Steel and Cast, less than 14" width	40 & 10 %
Steel, 14" and wider	65 & 10 %
Cast, 14" and wider	60 & 10 %
Special Cold Air Faces, Steel or Cast	40 & 10 %

RIDGE ROLL

Galv., Plain Ridge Roll, b'dld	75-15-5 %
Galv., Plain Ridge Roll, crated	75-15 %

SCREWS

Sheet Metal

7, ½ x ⅝, per gross	$0.52
No. 10, ⅝ x 3/16, per gross	0.68
No. 14, ⅞ x ¼, per gross	0.83

SHEARS, TINNERS' AND MACHINISTS'

Viking	$22.00

Lennox Throatless

No. 18	35 %
Shear blades	10 %

(F.o.b. Marshalltown, Iowa)

SHOES

Galv. 28 Gauge, Plain or Corrugated, round flat crimp	60-10 %
26 gauge, round flat crimp	50 %
24 gauge, round flat crimp	15 %

SNIPS

Tinners'	Net

VENTILATORS

Standard	30 to 40 %
Milcor	Net

HEALTHAIR

Warms in Winter—Cools in Summer

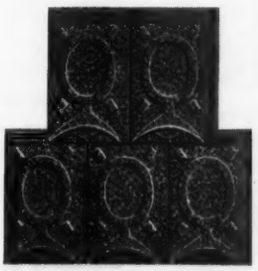
CONDITIONING *and* HEATING SYSTEMS

1005 NORTH MAIN ST.,
ANN ARBOR, MICHIGAN

WARMS IN WINTER · COOLS IN SUMMER

GLOBE TRADE MARK BRAND

METAL SHINGLES



Made of finest quality special soft Open Hearth Steel Plates, galvanized or painted. Three distinctive designs. Send for catalog.

The Globe Iron Roofing & Corrugating Co.
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Watt Mfg. Co., Sterling, Ill.

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Sternaman, Springfield, Ill.

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Chaplets

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(See Furnace Cleaners)

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Berger Bros. Co., Philadelphia, Pa.
Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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David Levow, New York, N. Y.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Rival Strap Corp., New York, N. Y.

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Yoder Co., The Cleveland, Ohio

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Howes Co., S. M., Boston, Mass.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., New York, N. Y.
Young Ventilating Co., Cleveland, Ohio

Dampproofings

Lastik Products Corp., Pittsburgh, Pa.

Diffusers—Air Duct

Aeolus Dickinson, Chicago, Ill.

Drills—Electric

Osborn Co., J. M. & L. A., Cleveland, Ohio

Drive Screws—Hardened Metallic

Parker-Kalon Corp., New York

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Berger Bros. Co., Philadelphia, Pa.
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Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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Berger Bros. Co., Philadelphia, Pa.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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Fans—Ventilating

Emerson Elec. Mfg. Co., St. Louis, Mo.

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Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

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Interstate Machinery Co., Chicago, Ill.

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Lastik Products Corp., Pittsburgh, Pa.
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Technical Products Co., Pittsburgh, Pa.

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Grand Rapids Furnace Cleaner Co., Grand Rapids, Mich.

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American Fdy. & Furnace Co., Bloomington, Ill.
Emerson Electric Mfg. Co., St. Louis, Mo.

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Lakeside Co., Hermansville, Mich.

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Peerless Foundry Co., Indianapolis, Ind.
Williamson Heater Co., Cincinnati, Ohio

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Independent Reg. & Mfg. Co. Cleveland, Ohio

Furnace Pulleys

Hart & Cooley Co., Holland, Mich.

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Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Modern Heat Regulator Co., Cleveland, Ohio
White Mfg. Co., Minneapolis, Minn.

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Forest City Foundries Co., Cleveland, Ohio

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Northwestern Stove Repair Co., Chicago
Peerless Fdry. Co., Indianapolis, Ind.

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Health-Air Systems, Ann Arbor, Mich.

Furnaces—Gas

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American Furnace Co., St. Louis, Mo.
Henry Furnace & Foundry Co., Cleveland, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Meyer Furnace Co., Peoria, Ill.
Payne Furnace and Supply Co., Beverly Hills, Calif.
Round Oak Furnace Co., Dowagiac, Mich.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

Furnaces—Gas Auxiliary

Forest City Foundries Co., Cleveland, Ohio

Furnaces—Oil Burning

Motor Wheel Corp., Heater Div., Lansing, Mich.

Furnaces—Warm Air
(See Also Unit Air Conditioners)

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American Fdy. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Armstrong Furnace Co., Columbus, O.
Brillion Furnace Co., Brillion, Wis.
Dail Steel Products Co., Lansing, Mich.
Deshler Foundry & Machine Works, Deshler, Ohio
Enterprise Boiler & Tank Works, Chicago, Ill.
Forest City Foundries Co., Cleveland, Ohio
General HeatingCo., St. Paul, Minn.
Graff Furnace Co., Scranton, Pa.
Hall- Neal Furnace Co., Indianapolis, Ind.
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Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess Warming & Vent Co., Chicago, Ill.
Lennox Furnace Co., Marshalltown, Iowa
Liberty Foundry Co., St. Louis, Mo.
May Fiebeger Furnace Co., Newark, Ohio
Meyer Furnace Co., The, Peoria, Ill.
Midland Furnace Co., Cleveland, Ohio
Motor Wheel Corp., Heater Div., Lansing, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Peerless Foundry Co., Indianapolis, Ind.
Premier Warm Air Heater Co., Dowagiac, Mich.
Round Oak Furnace Co., Dowagiac, Mich.
Rybolt Heater Co., Ashland, Ohio
Schwab Furnace & Mfg. Co., Cedar Grove, Wis.
U. S. Furnace Co., Youngstown, Ohio
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Williamson Heater Co., Cincinnati, O.
Wise Furnace Co., Akron, Ohio

Grilles

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Chicago Perforating Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.
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Independent Register & Mfg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., New York
U. S. Register Co., Battle Creek, Mich.

Guards—Machine and Belt

Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler

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Handles—Soldering Iron

Parker-Kalon Corp., New York, N. Y.

Heat Regulators

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Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Modern Heat Regulator Co., Cleveland, Ohio
White Mfg. Co., Minneapolis, Minn.

Heaters—Cabinet

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Motor Wheel Corp., Heater Division, Lansing, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Premier Warm Air Heater Co., Dowagiac, Mich.
Waterman-Waterbury Co., Minneapolis, Minn.

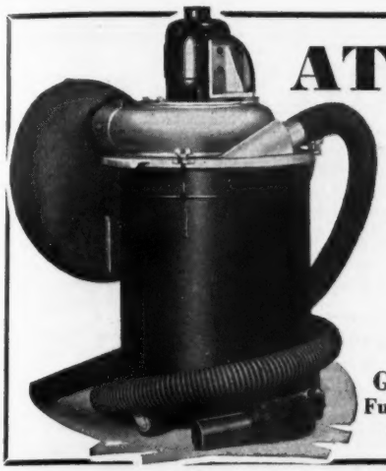
Heaters—School Room

Meyer Furnace Co., The, Peoria, Ill.
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.

Humidifiers

Automatic Humidifier Co., Cedar Falls, Iowa
Clarm Mechanical Devices Co., Lima, Ohio
Columbus Humidifier Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Meyer & Bro. Co., F., Peoria, Ill.
Sallada Mfg. Co., Minneapolis, Minn.

(Continued on page 54)



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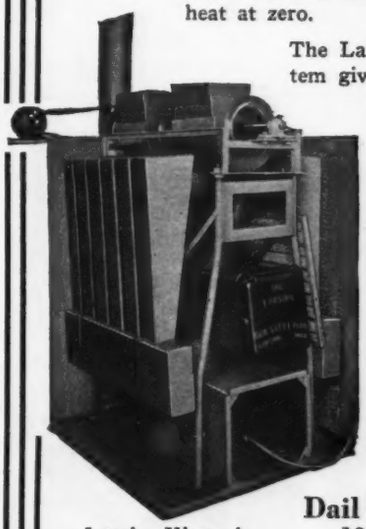

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(Continued from page 52)

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Interstate Machinery Co., Chicago, Ill.

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Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.
Yoder Co., The, Cleveland, Ohio

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Berger Bros. Co., Philadelphia, Pa.
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Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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Emerson Elec. Mfg. Co. St. Louis, Mo.

Nails—Hardened Masonry

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Laco Oil Burner Co., Griswold, Iowa
Northern Oil Burners Inc., Minneapolis, Minn.
Silent Automatic Corp., Detroit, Mich.

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Connors Paint Mfg. Co., Wm., Troy, N. Y.

Perforated Metals

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Harrington & King Perforating Co., Chicago, Ill.

Pipe—Cast Iron Smoke

Sternaman, Springfield, Ill.

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Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
W. A. Whitney Mfg. Co., Rockford, Ill.

Punches—Combination Bench and Hand

Parker-Kalon Corp., New York, N. Y.

Punches—Hand

Parker-Kalon Corp., New York, N. Y.
W. A. Whitney Mfg. Co., Rockford, Ill.

Putty-Stove

Connors Paint Mfg. Co., Wm., Troy, N. Y.

Radiator Cabinets

Hart & Cooley Mfg. Co., New Britain, Conn.

Registers—Warm Air

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Forest City Foundries Co., Cleveland, Ohio
Hart & Cooley Co., Holland, Mich.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Register & Mfg. Co., Cleveland, Ohio
Meyer & Bro., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Rock Island Register Co., Rock Island, Ill.
Symonds Register Co., St. Louis, Mo.
United States Register Co., Battle Creek, Mich.

Registers—Wood

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Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

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Northwestern Stove Repair Co., Chicago, Ill.
Peerless Fdry. Co., Indianapolis, Ind.

Ridging

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Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Roofing Cement

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Lastik Products Corp., Pittsburgh, Pa.

Roof Flashing

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Roof Paints

Connors Paint Mfg. Co., Wm., Lastik Products Corp., Pittsburgh, Pa.

Roofing—Iron and Steel

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., The, Newport, Ky.
Republic Steel Corp., Youngstown, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Roofing—Tin and Terne

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Republic Steel Corp., Youngstown, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Rubbish Burners

Hart & Cooley Mfg. Co., New Britain, Conn.

School—Sheet Metal Pattern Drafting

St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating

St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., 200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Parker-Kalon Corp., New York

Screens—Perforated Metal

Chicago Perforating Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill.

Scuppers

Aeolus Dickinson, Chicago, Ill

Shears—Hand and Power

Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Peck, Stow & Wilcox Co., Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.
Yoder Co., The, Cleveland, Ohio

Sheet Metal Screws—Hardened, Self-Tapping

Parker-Kalon Corp., New York

Sheets—Alloy

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International Nickel Co., New York, N. Y.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

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Granite City Steel Co., Granite City, Ill.
Inland Steel Co., Chicago, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Republic Steel Corp., Youngstown, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Sheets—Copper

American Brass Co., Waterbury, Conn.
Revere Copper & Brass Inc., Rome, N. Y.

Sheets—Iron

Granite City Steel Co., Granite City, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Sheets—Copper Bearing Steel

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Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Sheets—Nickel

International Nickel Co., New York

Sheets—Pure Iron Copper Alloy

Newport Rolling Mill Co., Newport, Ky.

Sheets—Special Finish

Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
Republic Steel Corp., Youngstown, Ohio

Shingles and Tile—Metal

Globe Iron Roofing & Corrugated Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Skylights

Globe Iron Roofing & Corrugating Co., Cincinnati, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Snips

Peck, Stow & Wilcox Co., Southington, Conn.
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David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Solder

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Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Solder—Acid Core

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Solder—Rosin Core

Kester Solder Co., Chicago, Ill.

Solder—Self-Fluxing

Kester Solder Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Soldering Furnaces

Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Soot Destroyer

Saginaw Salt Prod. Co., Saginaw, Mich.

Specialties—Hardware

Diener Mfg. Co., G. W., Chicago, Ill.

Stars—Hard Iron Cleaning

Fanner Mfg. Co., Cleveland, Ohio

Stove Pipe and Fittings

Meyer & Bro. Co., F., Peoria, Ill.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Stove and Furnace Trimmings

Fanner Mfg. Co., Cleveland, Ohio

Strainers—Roof

David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Straps—Ornamental Pipe

David Levow, New York, N. Y.
Rival Strap Corp., New York, N. Y.

Tinplate

Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Tools—Tinsmith's

(See Machines—Tinsmith's)

Torches

Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Unit Air Conditioners

Armstrong Furnace Co., Columbus, Ohio
American Fdry. & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Dail Steel Products Co., Lansing, Mich.
Henry Furnace & Fdry. Co., Cleveland, Ohio
Health-Air Systems, Ann Arbor, Mich.
Hess Warming & Ventilating Co., Chicago, Ill.
Lennox Furnace Co., Marshalltown, Iowa
May-Fieberger Co., Newark, Ohio
Meyer Furnace Co., Peoria, Ill.
Motor Wheel Corp., Lansing, Mich.
Payne Furnace & Supply Co., Beverly Hills, Calif.
Williamson Heater Co., Cincinnati, Ohio

Vacuum Cleaners—Furnace

(See Furnace Cleaners)

Baker Furnace Co., Toledo, Ohio
Brillion Furnace Co., Brillion, Wis.
Densmore & Quinlan Co., Kenosha, Wis.

Ventilators—Ceiling

Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Reg. & Mfg. Co., Cleveland, Ohio

Ventilators—Floor

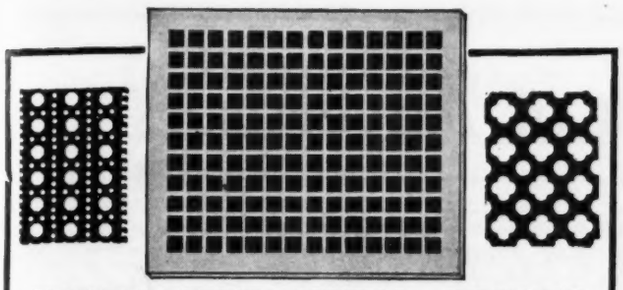
Aeolus Dickinson, Chicago, Ill.

Ventilators—Roof

Aeolus Dickinson, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Burt Mfg. Co., Akron, Ohio
Jordan & Co., Paul R., Indianapolis, Ind.
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.

Wood Faces—Warm Air

Auer Register Co., Cleveland, Ohio
Milcor Steel Co., Mil., Canton, Chgo., LaCrosse, K. C.



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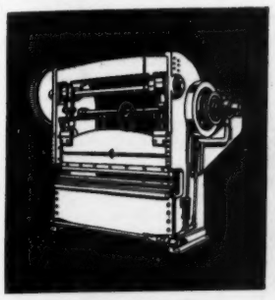
SQUARE PERFORATIONS—IMITATION CANE and OTHER DESIGNS
For Ventilating Outlets, Warm or Cold Air Vents, Radiator Covers, etc.
Made to your specifications—in Steel, Brass, Bronze, etc.
All shapes—sizes and gauges—with screw holes if desired.
Send Us Your Specifications—Prompt Shipment
Attractive Prices
CHICAGO PERFORATING COMPANY
2444 West 24th Place Chicago, Illinois

Look up the August 31st issue of the Artisan and read pages 4 and 5 for an interesting announcement • If you missed it before you will want to see it now • • • • •



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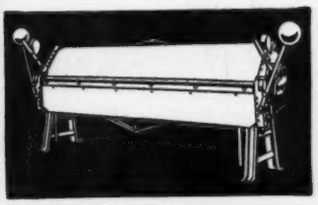

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STEEL BRAKES—PRESSES—SHEARS
DREIS & KRUMP MFG. CO.
7404 LOOMIS BLVD. CHICAGO

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IMMEDIATE SHIPMENT FROM STOCK
More than twenty kinds of prime quality sheets are carried in stock. There is a special sheet for every purpose. Also Bars, Angles, Rivets, Bolts, Tools and Metal-Working Machinery.
Write for Journal and Stock List
JOSEPH T. RYERSON & SON Inc.
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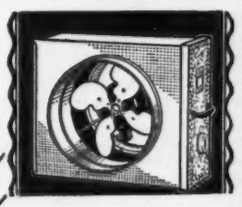
SHEETS

Let This Unit Boost Your Sales and Profits



A-C Thermostatically Controlled Automatic HEAT BOOSTER
Write Today for Full Information and Name of Nearest Jobber
A-C MANUFACTURING CO.
417 SHERMAN AVENUE PONTIAC, ILLINOIS

The Viking Shear
Compound lever handle—removable blades. Upper blade away from mechanic enabling easy following of work—an exclusive Viking feature.

Sold Under a Guarantee—Send for Particulars
VIKING SHEAR CO., Erie, Pa.

THE WORLD'S LARGEST MANUFACTURERS OF STEEL FURNACES
LENNOX
FURNACE CO., INC.
MARSHALLTOWN · IOWA
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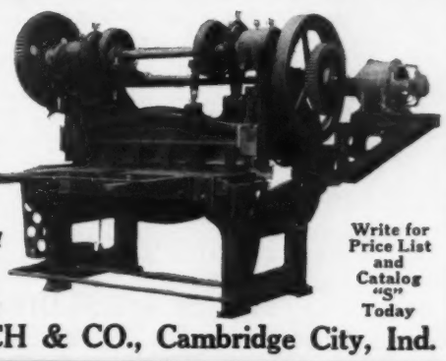
BERTSCH POWER SHEAR
BELT OR — MOTOR DRIVE
Takes lightest sheets to Heaviest Plates
—
Built in all Standard Sizes and Capacities



Write for Price List and Catalog "S" Today
BERTSCH & CO., Cambridge City, Ind.

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Classified Advertising

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddie Company, Marshfield, Wis.

HELP WANTED

Wanted—A sales manager to take full charge of sales for an established company manufacturing and selling a well known steel furnace.

Address L-540
AMERICAN ARTISAN
139 North Clark Street Chicago, Ill.

Wanted—A good retail furnace salesman to work in Northwestern Pennsylvania. Must be capable of figuring and laying out own jobs. Commission basis or salary and commission. Have hundreds of live prospects to work on. Wonderful opportunity for a man who knows the furnace business and is willing to work. Address H-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Manufacturers' Agents

Wanted to sell our furnace cement, roofing paint and cement and calking compounds. Our consistent trade paper advertising is creating demand. Exclusive territory given with liberal commission. Address W-538, AMERICAN ARTISAN, 139 N. Clark Street, Chicago, Illinois.

Wanted—Good all around sheet metal worker with experience in general line; also, one sheet metal worker who is experienced in installing air-conditioning plants. Must be mechanics and hustlers. Address T-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—Reliable, industrious sheet metal worker between 35 and 40 years of age, fully capable of handling any and all kinds of shop and outside work, fan suction and exhaust systems, skylights, cornices, ventilation and roofing jobs. Must be willing and able to do in and outside jobs from start to finish. References from last two employers. State least wages for nine hour day and don't apply unless you are sure of yourself and thoroughly experienced in all branches of sheet metal business. Address A-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

SITUATION WANTED

Situation Wanted—By tinner. Good all around man on gutters and furnace work. Steady and reliable. Prefer Chicago or vicinity. Call GARD, Mansfield 9132, or write M-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—First class tinner and furnace man. Capable at layout and pattern cutting. Over twenty years' experience. 37 years of age, have good habits, and am in good health. Please state full particulars. Address J. D. Grace, Box 175, Elmer, Missouri. O-540

SITUATION WANTED

Sales and Advertising Manager

well-known in the industry and to the trade, seeks new connection with manufacturer who is interested in developing air conditioning equipment.

Broad and productive experience in all lines of heating engineering, including adaptation of refrigeration in connection with forced warm air heating systems.

Have designed several air conditioning units, and improvements in warm air furnace construction.

Member A. S. H. & V. E., A. S. M. E. Twelve years with present company.

Address J-540
AMERICAN ARTISAN
139 North Clark Street Chicago, Ill.

Situation Wanted—Would like to hear from a good firm that is in need of a young dependable business man in the hardware line. Address P-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—Would like to hear from furnace company. Have been foreman of fitting factory for twenty years. Can make tin and galvanized elbows for 2c, pipeless casings complete for a dollar, better safety pipe for 1c a foot, and can case furnaces with hood complete for 50c. Have a new safety pipe design that beats anything on earth. Will work on percentage basis. Address X-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Wanted—A good opening for plumbing or plumbing and hardware man in town of 1,000 to 4,000. County seat preferred. Not too much competition. Iowa, Wisconsin, or Southern Minnesota preferred. Address D-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By all around tinner and sheet metal worker. Can handle any branch of the trade, cornice, skylights, ventilation, hot air heating, and can make estimates, sell, and run the shop on paying basis. Prefer job with some good hardware company or job shop. Will go any place. Address Z-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By first class tinner making a specialty of warm air heating. Can do all estimating and make blueprints. Can draft patterns and make all fittings. Also some sales experience. Address J. H. Dennick, Juda, Wisconsin. H-541

Situation Wanted—As manager of heating and repair department with some live, growing warm air heating firm or a well rated sheet metal firm desirous of installing a real heating department. Fifteen years experience in every phase of the work, gravity, fan, and Air Conditioning systems. Address B-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—An experienced tinner and furnace man is open for a job along these lines. Can also do plumbing. Hardware clerk and general all around man. Can give satisfaction. Iowa preferred but will go anywhere. Reasonable wages. Address E-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By sheet metal worker with 18 years experience in general sheet metal work and warm air heating, both gravity and conditioned. Can read blueprints, make plans, lay out patterns, figure jobs, and sell. Would like to connect with reputable company who wants good work and a profit. Illinois preferred. Address G-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

SITUATION WANTED

Situation Wanted—By first class sheet metal worker of long general experience in cornices, heating and special work. Understand blueprints and pattern cutting. Neat and accurate on shop work. Healthy and A-1 habits. Address with particulars F-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—By a first class tinner and sheet metal worker, experienced in warm air heating, pump and windmill work. Best of references. Address G-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

To A Wide Awake Manufacturer—Wanted, position as salesman for furnace manufacturer that has a reasonably priced line. Can assure a good amount of business in Illinois and Wisconsin. Can do that if I first have a furnace that is priced right and proper terms. Second, will put one third more time in than would be necessary when business was normal. Then when business gets back to normal—which is only around the corner—we would have the jump on the other fellows that are asleep on their feet. Address D-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

Situation Wanted—By an A-1 all around sheet metal worker experienced in all branches of the trade. Also experienced in plumbing work. Excellent references furnished upon request. Address C-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Ill.

Situation Wanted—By furnace salesman to sell either jobber or dealer. Record as a producer. College graduate, ten years' experience. Address J-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

Situation Wanted—Have had 30 years' experience in all branches of the trade. Shop foreman in our shop 16 years. Good draftsman. Read plans readily and estimate from same. Have 8 foot Cornice brake, bench and hand tools, 1½ ton truck. Will go anywhere. Please let me hear what you have. Address K-541, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

TOOLS AND MACHINERY

For Sale—One No. 105 Oster Bull Dog Die Stock and dies, cuts 1½ to 3" pipe. First check for five dollars gets it. Address Warren Plumbing and Heating Co., Warren, Ill. B-540

For Sale—Power Elbo Machinery, crimper and beader—"Pexto" late design. Electric motor, shafting pulleys and belting, all complete and as good as new—used only a few days. A bargain for someone. Details on request. Address McEwen Furnace Company, 5204 East 15th Street, Kansas City, Missouri. K-540

For Sale—Cheap. One 30" square shear, or will trade for 8' or 10' Chicago Steel Cornice Brake. Address Earnest Rehbein, c/o Lee & Radtke Hardware Company, Baraboo, Wisconsin. R-540

For Sale—A complete set of sheet-metal worker's tools. Will sell all, or part. Cheap if taken at once. Address S-540, AMERICAN ARTISAN, 139 North Clark Street, Chicago, Illinois.

For Sale—Set of tinner's tools. Consists of 8 foot steel brake, 30 inch square shears, 30 inch bar folder, slitting shear, bench tools, etc. All in good condition and priced to move at once. Address E. Haverstock, Rt. 7, South Bend, Indiana. Y-540

RESISTANCE TO WEATHER? THAT Question is Settled!

INLAND COPPER ALLOY STEEL

TESTS by the American Society for Testing Materials have settled one question—that copper-bearing steel sheets outlast non-copper-bearing iron or steel sheets under actual atmospheric conditions.

Inland Copper-Alloy displays its remarkable rust-and-weather-resisting quality in all outdoor applications such as roofing and siding, locomotive jackets, culverts, skylights, oil and water tanks, parts of agricultural machinery, and in a multitude of other uses.

Moreover, customers find that the use of Inland Copper-Alloy Steel Sheets greatly reduces maintenance and repair expenses, such as painting or patching; and that because these sheets offer greater resistance to corrosion, they retain their shape longer, do not dent, bend or bulge so easily.

No matter what the condition of business, such advantages always redound to the benefit of sales and are definite reasons for you to specify "Inland Copper-Alloy Steel" on your next order. INLAND STEEL COMPANY, 38 South Dearborn Street, Chicago, Ill.

INLAND STEEL

ABLE SERVANT OF THE CENTRAL WEST

Sheets Bands
Bars Plates
Structurals

Track Accessories
Rails Rivets
Billets

SAVE WITH STEEL

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REDUCED on

PARKER-KALON

HARDENED SELF-TAPPING

Sheet Metal Screws

PATENTED APR. 1. 1919. No. 1299232 — MAR. 28. 1922. No. 1411184 — AUG. 14. 1923. No. 1465148
FEB. 10. 1925. No. 1526182 — JUNE 9. 1931. No. 1809758 — OTHERS PENDING.

Ask your jobber for price list, or write us direct
Parker-Kalon Corporation, 190 Varick Street, New York